

2016-2017

دليل التلميذ

للمدارس الثانوية المتخصصة

Fiorello H. LaGuardia High School
of Music & Art and Performing Arts

The Bronx High School of Science

The Brooklyn Latin School

Brooklyn Technical High School

High School for Mathematics,
Science and Engineering City
College of New York

High School of American Studies
Lehman College

Queens High School for the
Sciences York College

Staten Island Technical High School

Stuyvesant High School

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قام بتصميم الغلاف HyunJi “Rachel” Yoon، طالب في مدرسة Fiorello H. LaGuardia High School of Music & Art and Performing Arts. تتسم جميع المعلومات الواردة في هذا الدليل بالدقة إبان صدورها إلا إنها قد تتعرض للتغيير. للاطلاع على أحدث المعلومات، تفضل بزيارة موقع schools.nyc.gov/ChoicesEnrollment/High/specialized أو اتصل على هاتف رقم 718-935-2009. عناصر عينة الاختبار مأخوذة من مواد تتمتع بحقوق النشر © 1983-2016 NCS Pearson, Inc. 5601 Green Valley Drive, Bloomington, MN 55437.

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يتضمن كتيب التلميذ(ة) للمدارس الثانوية المتخصصة للعام الدراسي 2016-2017 معلومات مفيدة، تشمل:

- إجراءات القبول بالمدارس الثانوية المتخصصة
- التسجيل لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) وتجارب أداء Fiorello H. LaGuardia High School of Music & Art and Performing Arts (LaGuardia High School)
- تأكيد تقديم التسهيلات لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) وتجارب أداء LaGuardia High School
- تقويم التواريخ الهامة
- نموذج اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) مع نصائح حول الاختبار

هناك تسع مدارس ثانوية متخصصة في مدينة نيويورك وهي

FIGEOLLO H. LAGUARDIA HIGH SCHOOL OF MUSIC & ART AND PERFORMING ARTS		يتم اتخاذ قرار الإلحاق بناءً على تجربة (تجارب) الأداء
الرقص	الدراما	
موسيقى الآلات	المسرح التقني	
الفنون الجميلة	الموسيقى الصوتية	
THE BRONX HIGH SCHOOL OF SCIENCE		يتم اتخاذ قرار الإلحاق بناءً على اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)
THE BROOKLYN LATIN SCHOOL		
BROOKLYN TECHNICAL HIGH SCHOOL		
HIGH SCHOOL FOR MATHEMATICS, SCIENCE AND ENGINEERING AT THE CITY COLLEGE OF NEW YORK		
HIGH SCHOOL OF AMERICAN STUDIES AT LEHMAN COLLEGE		
QUEENS HIGH SCHOOL FOR THE SCIENCES AT YORK COLLEGE		
STATEN ISLAND TECHNICAL HIGH SCHOOL		
STUYVESANT HIGH SCHOOL		

تم إنشاء هذه المدارس وفقاً لقانون الولاية رقم 2590، القسم (G). يتم تحديد الإلحاق بهذه المدارس عن طريق خوض اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، باستثناء مدرسة (LaGuardia High School)، حيث يتم القبول فيها بناءً على تجارب الأداء التنافسية ومراجعة السجلات الأكاديمية. يتعين أن يكون التلميذ من سكان مدينة نيويورك وفي الصف الثامن حالياً أو في الصف التاسع لأول مرة لكي يتمكنوا من التقديم، والتسجيل، وخوض الاختبار، وتلقي نتيجة اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وتجربة (تجارب) الأداء بثانوية لاغوارديا (LaGuardia High School).

للحصول على التحديثات الخاصة بالقبول بالمدارس الثانوية المتخصصة، يُرجى زيارة:
<http://schools.nyc.gov/ChoicesEnrollment/High/specialized>.

دليل التلميذ للمدارس الثانوية المتخصصة هو مشروع خاص بإدارة التعليم لمدينة نيويورك.

التدريب الأولي على امتلاك المعرفة الأساسية بالمجالات الأكاديمية الأساسية التي يستخدمها التلاميذ كقاعدة لاستكشاف أعمق في الصفوف الأعلى. ويكوّن برنامج البكالوريا الدولية (International Baccalaureate (IB)) المعروف على مستوى العالم بأنه أكثر البرامج الأكاديمية صرامة وشمولية على مستوى الدراسة الثانوية، جزءاً أساسياً من المنهج الدراسي لثانوية (TBSL). ويكتسب التلاميذ في جميع الصفوف خبرة التركيز القوي المتواصل على الكتابة المنظمة والخطبة العامة، بالإضافة إلى الفرص العديدة للتفكير التحليلي الذي يهدف لمواجهة مصاعب الدراسة بالكليّة.

البرنامج الأكاديمي: يطلب من جميع التلاميذ إكمال أربع سنوات من دراسة اللغة اللاتينية والتاريخ والرياضيات واللغة الإنكليزية والعلوم، وستين على الأقل من دراسية لغة عالمية، وسنة واحدة من دراسة تاريخ الفن. ويتميز العديد من فصولنا بتدريبات على الخطابة أمام العامة مثل الخطب والندوات السقراطية، بالإضافة إلى العروض الشفهية بالمختبرات العلمية ومجموعات المسائل الرياضية. كما يتميز العديد من فصولنا بتدريبات على الكتابة مثل تقارير المختبرات العلمية والمقالات وملفات الأوراق الإسبانية، وأوراق النماذج الرياضية، والترجمة المنظورة باللغة اللاتينية. يركّز برنامج البكالوريا الدولية (IB) على الاستقصاء بقيادة التلاميذ، وعلى الرؤى العالمية وتحرر الفكر، وعلى الكرامة الشخصية، وهي أفكار تتوافق تماماً مع الأسس المثالية التي قامت عليها المدرسة. وإضافة إلى أعمال الفصل الدراسي الصارمة في برنامج البكالوريا الدولية (IB)، يركّز البرنامج على التفكير المستقل والمشاركة المجتمعية. للحصول على شهادة البكالوريا الدولية (IB)، يتوقع من التلاميذ إتمام مشروع بحث مستقل مكون من كتابة مقالة تتكون من 4000 كلمة حول موضوع من اختيارهم، وهو تكليف يرتبط بشكل وثيق مع كتابة الأبحاث على مستوى الكلية. ويطلب منهم حضور دورة دراسية لمدة سنتين في نظرية المعرفة تدعى (Theory of Knowledge (TOK)، وهي دورة تحفّز التلاميذ للبحث في طرق بناء المعرفة، ثم تتوج هذه الدورة بكتابة ورقة بحث أخيرة وتقديم عرض حولها. بالإضافة إلى هذا، يُطلب من التلاميذ المشاركة في أنشطة تتضمن إبداعية وخدمية وتأمليّة لفترة تتجاوز 18 شهراً. وقد يتضمن برنامج الإبداع والتصرف والخدمة (CAS) أعمالاً تطوعية أو الانخراط بشكل نافع في مجتمع TBSL والمجتمع الأكبر. تساعد هذه المتطلبات لشهادة البكالوريا الدولية (IB) تلاميذنا على أن يصبحوا مواطنين عالميين متكاملين.

الأنشطة الإضافية خارج المنهج الدراسي: تقوم مدرسة (TBSL) حالياً برعاية أكثر من 40 نشاط خارج الدوام الدراسي، وذلك لإثراء التلاميذ خارج الفصل الدراسي ولتسهيل إكمال متطلبات برنامج الإبداع والتصرف والخدمة (CAS)، وتتضمن هذه الأنشطة الفرق الرياضية مثل العدو عبر البلاد، وتنس الريشة وكرة القدم، وكرة السلة للفتيات والفتيان، والمصارعة للفتيان، ونوادي الكرة الطائرة للفتيات، وفرص الفنون الجميلة والأدائية مثل فنون الأستوديو، والتصوير الفوتوغرافي، والمجلة الأدبية، والرقص، والكابيل، والمجموعات الأخرى المتنوعة مثل الصحيفة المدرسية، ونادي (STOKED)، ونادي الرياضيات، ومناقسات العلوم (Science Olympiad)، ونموذج الأمم المتحدة، وأكثر من ذلك بكثير.

الإحلاق للعام الدراسي 2016: قام (16,962) تلميذ(ة) بإدراج مدرسة (Brooklyn Latin School) كخيارٍ لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وقد تم تقديم 409 عرض إحقاق.

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نظرة عامة: تقوم مدرسة (Bronx High School of Science) بتعليم مجتمع متعلمين متميزين بالتفوق من خلال تقديم منهاج دراسي صارم في العلوم والتكنولوجيا والهندسة والرياضيات (STEM). ويتم تعليم جميع المجالات الأكاديمية من خلال عدسة الاستقصاء للتأكيد على التفكير النقدي وحل المشكلات. وتقوم المدرسة برعاية مجتمع متنوع من المتعلمين لمدى الحياة الذين يكتشفون اهتماماتهم من خلال شبكة تعاونية داعمة من التلاميذ والتربويين والخبيريين. ويستكشف التلاميذ، من خلال استخدام مزيج متوازن من التعلّم النظري والتطبيقي، المشكلات المعقدة ويتوفر لهم زخمٌ غني من الموارد لاستنباط الحلول. ومن خلال الاستفادة من تاريخ طويل من النجاح الأكاديمي، تقوم مدرسة (Bronx High School of Science) بإعداد التلاميذ للتميز في أفضل الكليات والجامعات. كما تقوم المدرسة بتشثنة قادة وأفراد مثاليين للمستقبل. ومن ضمن خريجي المدرسة هناك ثمانية أشخاص حازوا على جائزة نوبل وستة قد حازوا على جائزة البوليتيزير.

البرنامج الأكاديمي: توفر مدرسة (Bronx High School of Science) ثلاثين دورة من دورات الإحقاق المتقدم (AP)، والعديد من الدورات الدراسية لما بعد الإلتحاق المتقدم (post-AP) (دورات دراسية من السنة الثانية بالكليات). تقدم المدرسة سبع لغات أجنبية، والعديد من المواد الاختيارية في علم الأحياء، والكيمياء، والفيزياء، والرياضيات، والتكنولوجيا، والعلوم الإنسانية، والموسيقى، ودورة دراسية للبحث المستقل تصل مدتها إلى ثلاث سنوات في برنامج (STEM) أو في العلوم الاجتماعية. يمكن أيضاً للتلاميذ اختيار سلسلة متعاقبة من مواد علوم الكمبيوتر والهندسة، تركز على التطبيق العملي للمبادئ العلمية. يقدّم الموقع الإلكتروني للمدرسة وصفاً كاملاً للدورة الدراسية.

الأنشطة الإضافية خارج المنهج الدراسي: تشمل الأنشطة الإضافية أكثر من 70 نادٍ لما بعد الدوام الدراسي، و 43 فريق رياضي، وفريق للخطابة والمناظرات حائز على تقدير عالمي، وفريق تقليد المحاكمات، وفريقين اثنين للإنسان الآلي، وإنتاجيين مسرحيين، ونادي (SING)، وجريدة وكتاب سنوي، وصحف بحثية.

الإحلاق للعام الدراسي 2016: قام (19,456) تلميذ(ة) بإدراج مدرسة (Bronx Science) كخيارٍ لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وقد تم تقديم 962 عرض إحقاق.

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لمحة عامة: تم إنشاؤها في عام 2006، وهي مصممة على طراز مدرسة (Boston Latin school) العريقة. وتقدم مدرسة (Brooklyn Latin School: TBSL) منهاجاً دراسياً من الفنون التحريرية، مع التركيز على تدريس اللغة الكلاسيكية واللاتينية. يركّز

نظرة عامة: تم إنشاء مدرسة (The High School for Mathematics, Science and Engineering: HSMSE) في عام 2002 في كلية (The City College of New York: CCNY)، وتقوم بتقديم تجربة تعليمية تعاونية فريدة منقطعة النظير.

مهمة المدرسة هي تشجيع التلاميذ على تنمية عادات الاستقصاء، والتعبير الكتابي واللفظي، والتفكير النقدي. تقوم مدرسة (HSMSE) بإلحاق قرابة 450 تلميذ(ة)، يتم اختيارهم من الأحياء الخمسة، مما يجعلها واحدة من أكثر المدارس تنوعاً اثنيًا في مدينة نيويورك. وتركز البيئة التعليمية الصارمة على الرياضيات والعلوم والهندسة، في الوقت الذي تعزز فيه أيضاً المسؤولية المدنية وقيمة تحصيل المعرفة لقيمتها الجوهرية الذاتية. يعمل طاقم التدريس بمدرسة (HSMSE) معاً بشكل منظم لتخطيط الدروس، وإعداد المنهج الدراسي، وتبادل أفضل الممارسات. وتثري خبراتهم المهنية والشخصية المجتمع التعليمي؛ وقد حصل العديد من أعضاء هيئة التدريس على درجة الدكتوراه، ويحمل جميعهم درجات جامعية متقدمة. وقد تميّز العديد منهم في مجالات إدارة الأعمال، والهندسة، والمجالات الأخرى قبل أي يصحبوا معلمين.

ويعمل لدى HSMSE مجموعة موظفين ممن يجرون جلسات استشارية فردية وجماعية بانتظام، بالإضافة إلى تنسيق برنامج Big Sib / Little Sib الذي يعمل على الاتصال بتلاميذ السنة الثالثة أو الرابعة للعمل بصفهم مدربين زملاء لتلاميذ المرحلة الأولى أو الثانية. ومن خلال شراكة مع The New York Foundling، تضم HSMSE مركزاً للصحة والعافية ويعمل به طبيب سريري متخصص في الصحة العقلية بدوام كامل. كما ترى HSMSE ورش عمل يكون بها فكرة رئيسية عامة وشركاء من نفس المجال، ممن يقدمون متحدثين من وزارات مختلفة لعرض نظرة شاملة عن شركة أو وظيفة معينة. كما يمكن للتلاميذ المشتركين الالتحاق ببرنامج بحث صيفي و/أو تدريب مهني و/أو فرص عمل بالشركة المشاركة.

البرنامج الأكاديمي: تقوم مدرسة (HSMSE) بتخطيط الدروس التي تتضمن مناقشة التلاميذ والتعلم التعاوني لتنمية وتحسين مهارات حل المشكلات. يحضر جميع التلاميذ دورات الرياضيات والعلوم لمدة أربع سنوات. وتجتمع الفصول الأساسية كل يومين لمدة 90 دقيقة، مما يتيح الوقت للانخراط في أنشطة عملية ومناقشات عميقة. يحضر التلاميذ دورة اختيارية اثرائية لمدة 45 دقيقة يومياً، وتشمل خيارات الدورات: الإطعام، والفلك، وشهادة اختصاصي استخدام مايكروسوفت، والفنون، وكتابة الشعر، وفرقة الجاز، والغيتار الكلاسيكي. هناك ثلاث تخصصات أساسية يختار التلاميذ أحدها في ربيع السنة الثانية من دراستهم: الرياضيات، أو برنامج (Mount Sinai Medical Biomedical Research Program) للبحث الطبي، أو الهندسة. يتوفر لدى مدرسة (HSMSE) أكبر برنامج لغة ألمانية في ولاية نيويورك. كما يتم تقديم دورات دراسية يتم احتسابها كوحدة دراسية للكلية في عدة أساليب: تتوفر دورات الإلحاق المتقدم للجميع، ويتم تقديم دورات دراسية من جامعة CUNY للتلاميذ المؤهلين من خلال الشراكة مع جامعة CCNY وبرنامج College Now بجامعة City University of New York (CUNY).

الأنشطة الإضافية خارج المنهج الدراسي: تقوم قاعة (Baskerville Hall) لمدرسة (CCNY) قبالة ساحة الكلية مما يتيح للتلاميذ فسحة خضراء لتناول وجبة الغداء والتواصل الاجتماعي والاسترخاء في الأيام المشمسة. يمكن للتلاميذ المشاركة في مجموعة متنوعة من الأنشطة خارج المنهج الدراسي وفي رياضيات الاتحاد الرياضي للمدارس العامة (PSAL) بعد الدوام الدراسي، بما في ذلك برنامج Junior Statesmen of America، والمحكمة الصورية، وتقليد المحاكمات، ونموذج الأمم المتحدة، ونادي Key Club International.

BROOKLYN TECHNICAL HIGH SCHOOL

29 Fort Greene Place, Brooklyn, New York 11217

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البريد الإلكتروني: info@bths.edu

نظرة عامة: تُعتبر مدرسة (Brooklyn Technical High School (Brooklyn Tech)) هي المدرسة الثانوية العامة الأكبر في البلاد. ومن خلال وجودها ضمن منشأة فيزيائية من أحدث طراز تمّ تجديدها لتلائم القرن 21، تمثل هذه المدرسة نموذجاً وطنياً للتميّز وبيئة مثيرة تعزز التعليم التحولي والنمو على المستوى الشخصي. وتقدم مدرسة (Brooklyn Tech)، من خلال استخدام التكنولوجيا الحديثة في صلب علمها والمختبرات وغرف الصفوف المصممة على مستوى المعايير الجامعية والصناعية، بيئة فكرية حيوية لكل من طاقم التدريس والتلاميذ من أجل استكشاف وتبني الأفكار والتقنيات والطرائق التدريسية التي ترسم المستقبل.

البرنامج الأكاديمي: يدرس جميع تلاميذ الصفين التاسع والعاشر، برنامجاً أكاديمياً أساسياً يتضمن دورات دراسية تحسب كوحدة دراسية جامعية في التصميم والبناء والالكترونيات الرقمية. وفي الصفين الحادي عشر والثاني عشر، يختار تلاميذ ثانوية (Brooklyn Tech) أحد مجالات التخصص الرئيسية التالية: علوم الفضاء، أو الهندسة المعمارية، أو العلوم الحيوية، أو الكيمياء، أو الهندسة المدنية، أو الإعداد للكلية، أو علم الاقتصاد والموارد المالية أو الهندسة الالكترونية الميكانيكية، أو العلوم البيئية، أو مدخل إلى الطب، أو التصميم الصناعي أو القانون والمجتمع، أو الرياضيات التطبيقية أو علم الميكاترونكس وعلم الروبوت أو الإعلام والرسوم المتحركة الرقمية، أو الفيزياء، أو أبحاث العلوم الاجتماعية، أو هندسة البرمجيات. بالإضافة إلى ذلك، تقدم المدرسة مواد اختيارية فريدة في الموسيقى القائمة على الأداء، والرياضيات التنافسية، والفرص البحثية.

الأنشطة الإضافية خارج المنهج الدراسي: يتم إثراء بيئة التعلم منقطعة النظير لمدرسة (Brooklyn Tech) من خلال 43 فريقاً من فرق الاتحاد الرياضي للمدارس العامة (PSAL) وأكثر من 120 نشاط ونادٍ. ويساعد كل من الشركاء في نفس المجال والشركاء من التعليم العالي، بالإضافة إلى مجتمع الخريجين على المحافظة على مستوى التميّز من خلال الإثراء في الفصل الدراسي، والإشراف، والتدريبات الميدانية وأكثر من ذلك.

الإلحاق للعام الدراسي 2016: قام (23,169) تلميذ(ة) بإدراج مدرسة (Brooklyn Tech) كخيارٍ لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وقد تم تقديم 1,939 عرض إلحاق.

HIGH SCHOOL FOR MATHEMATICS, SCIENCE AND ENGINEERING AT CITY COLLEGE OF NEW YORK

240 Convent Avenue, New York, New York 10031

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البريد الإلكتروني: info@hsmse.org

QUEENS HIGH SCHOOL FOR THE SCIENCES AT YORK COLLEGE

94-50 159th Street, Jamaica, New York 11433
الهاتف: (718) 657-3181 ■ موقع الويب: www.qhss.org
البريد الإلكتروني: lgibson4@qhss.org

نظرة عامة: تركز ثانوية كوينز للعلوم (Queens High School for the Sciences) في كلية يورك (York College) جهودها لتقديم مناهج دراسية صارمة يركز على العلوم والرياضيات بالتعاون مع كلية يورك. وتتمثل فلسفة المدرسة في أن التلاميذ يحققون نجاحاً أكبر في حياتهم عندما تتم تنشئتهم في مجتمعات تعلم صغيرة. مهمة المدرسة هي تنشئة مجتمع من المتعلمين المجتهدين والمفكرين المستقلين المُفعمين بالحماس لتحقيق التميز الأكاديمي، وإعدادهم لمواجهة البيئة التنافسية وتحديات التعليم العالي.

البرنامج الأكاديمي: بالتوازي مع تقديم فصول دراسية صغيرة للدورات الدراسية الخاصة بالمدارس الثانوية التقليدية (مثل اللغة الانكليزية، والدراسات الاجتماعية، والعلوم، والرياضيات)، تقدم المدرسة مجموعة واسعة من الدورات الاختيارية في كافة المواد الأكاديمية، بالإضافة إلى الفنون والموسيقى واللغة. كما تتوفر للتلاميذ المؤهلين دورات إلتحاق متقدم تشمل علم الأحياء، والتفاضل والتكامل AB، وحساب التفاضل والتكامل BC، والكيمياء، واللغة الصينية، واللغة الانكليزية والإنشاء، وعلم البيئة، والفيزياء 1، واللغة الإسبانية، وتاريخ الولايات المتحدة، وتاريخ العالم. كما تتوفر الفرصة أيضاً للتلاميذ للإلتحاق بدورات برنامج (College Now) من جامعة (City University of New York: CUNY) في مواد دراسية مثل علم الأحياء، وعلم الاجتماع، والخدمات الصحية، والتغذية والصحة، وتمهيد في التفاضل والتكامل، وعلم النفس. تختلف الدورات الدراسية المقامة من عام إلى آخر. وإلى جانب تقديم فصول صغيرة تتسم بالرفعة، يتم دعم التلاميذ أكثر من خلال التدريس الخصوصي من قبل معلمين وتلاميذ متفوقين. ويدعم الموجهون الإرشاديون والتلاميذ ويساعدونهم في جميع المجالات المهمة، ولا سيما اختيار الكليات وتقديم الطلبات للإلتحاق فيها.

الأنشطة الإضافية خارج المنهج الدراسي: وحيث أن المدرسة تقع داخل حرم كلية يورك (York College)، يستمتع التلاميذ بالمنشآت الجامعية المجهزة على أحدث طراز، مثل مكتبة الكلية، وصالة الألعاب الرياضية، وحمام السباحة، والمسرح، والكافيتريا/قاعة الطعام، على مدى رحلتهم بالمدرسة الثانوية. وتتوفر العديد من النوادي لجميع التلاميذ (يتم تحديدها حسب اقتراح التلاميذ وتوفر طاقم العمل)، بما فيه نموذج هيئة الأمم المتحدة، ومنظمة العفو الدولية، والشطرنج، نادي (Sigma sorority)، والفلسفة، وكرة السلة، نادي (Key) وغير ذلك الكثير. يكون كل من فريق السباحة للفتيان والفتيان، وفريق البولينغ للفتيان، وفريق التنس وكرة اليد لكلا الجنسين، الفرق الرياضية للمدرسة.

الإلتحاق للعام الدراسي 2016: قام 16592 تلميذاً بإدراج ثانوية Queens High School for the Sciences at York College كخيار في طلبات التقديم لخوض القبول بالمدارس الثانوية المتخصصة (SHSAT)، وقد تم تقديم 157 عرض إلتحاق.

بالإضافة إلى ذلك، تقدم مدرسة (HSMSE) نوادي رياضة البيبنغ بونغ، والكرة الطائرة، والرقص، والتشجيع الحماسي، و (Strategy Games). يدخل تلاميذ مدرسة (HSMSE) في مناقشات على المستوى الوطني، تتم برعاية معهد غوته (Goethe Institute and American Association of Teachers of German)، وذلك من أجل الحصول على فرص التعليم بالخارج في ألمانيا. وفي كل عام، يتنافس تلميذ(ة) واحد على الأقل من مدرسة (HSMSE) بنجاح للحصول على فرصة سفر مجانية لمدة أسبوعين إلى ألمانيا. وترعى مدرسة (HSMSE) خلال العام الدراسي رحلات إلى الكليات مثل كلية (Boston College)، ومعهد (Massachusetts Institute of Technology)، وجامعة (Princeton)، وجامعة (Brown)، وجامعة (University of Michigan).

الإلتحاق للعام الدراسي 2016: قام (19,308) تلميذ(ة) بإدراج مدرستي (HSMSE) و (CCNY) كخيارات لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وقد تم تقديم 184 عرض إلتحاق.

HIGH SCHOOL OF AMERICAN STUDIES AT LEHMAN COLLEGE

2925 Goulden Avenue, Bronx, New York 10468
الهاتف: (718) 329-2144 ■ موقع الويب: www.hsas-lehman.org
البريد الإلكتروني: atrebofiore@schools.nyc.gov

نظرة عامة: تركز مدرسة (The High School of American Studies) في كلية (Lehman College: HSAS) على دراسة التاريخ الأمريكي وتزود التلاميذ ببرنامج أكاديمي متكامل يهدف إلى إعداد التلاميذ للإلتحاق بالكليات عالية التنافسية وللعمل في مجموعة من المهن في المجالات السياسة والقانون والصحافة وإدارة الأعمال والعلوم والرياضيات والفنون. وتطمح مدرسة (HSAS)، في كافة مساعيها، إلى تشجيع حب التعلم وروح الاستطلاع عند جميع التلاميذ.

البرنامج الأكاديمي: يخطط جميع التلاميذ في دراسة مرتبة زمنياً للتاريخ الأمريكي من ثلاث سنوات. وهدفنا هو إحياء التاريخ من خلال استخدام وثائق المصادر الأساسية، والأفلام، والسير الذاتية، والأدب، وتقنيات التدريس الإبداعي. ويحصل التلاميذ، من خلال الدعم المقدم من معهد Gilder Lehrman Institute، على المعرفة المباشرة بالأحداث الرئيسية في التاريخ الأمريكي من خلال القيام برحلات إلى مواقع ومدن ذات أهمية تاريخية، ومن خلال المشاركة في حلقات دراسية خاصة بحضور متحدثين زائرين. كما تقدم دورات دراسية للمتفوقين ودورات إلتحاق متقدم ودورات اختيارية في مواد الرياضيات، والعلوم، والقانون الدستوري والجنائي، والأدب والتصوير السينمائي، واللغات الأجنبية، والتاريخ، والفنون. ويتركز جزء خاص من برنامجنا على تطوير منهجيات ومهارات البحث الجامعي، ومن ثم يتلقى التلاميذ دعماً من المدرسة والكلية بالجامعة أثناء عملية متابعة المشروعات البحثية الفردية. ويتمكن التلاميذ من خلال التعاون مع Lehman College من استخدام مكتبة مجمع الكلية ومنشآتها الرياضية، كما قد يمكنهم أيضاً حضور فصول دراسية بمستوى الكلية يتم احتسابها كوحدة دراسية جامعية، وحضور حلقات بحث دراسية في صفوفهم الأولى والأخيرة.

الأنشطة الإضافية خارج المنهج الدراسي: يمكن للتلاميذ بعد الدوام المدرسي المشاركة في مجموعة متنوعة من النوادي، والانضمام لأحد الفرق الرياضية العديدة للمدرسة، والمشاركة في الأنشطة التنافسية، مثل تقليد المحاكمات، والمحاكمة الصورية، والمناظرات، ونموذج الأمم المتحدة.

الإلتحاق للعام الدراسي 2016: قام (17,061) تلميذ(ة) بإدراج مدرسة (HSAS) في كلية (Lehman College) كخيار لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وقد تم تقديم 159 عرض إلتحاق.

STUYVESANT HIGH SCHOOL

345 Chambers Street, New York, New York 10282-1099

الهاتف: 312-4800 (212) ■ موقع الويب: www.stuy.edu

البريد الإلكتروني: 02M475@schools.nyc.gov

نظرة عامة: إن مهمة مدرسة (Stuyvesant High School) هي تزويد التلاميذ بمنهج دراسي صارم يقوم برعاية ومكافأة فضولهم الفكري. وبالرغم من أن مدرسة (Stuyvesant) معروفة تاريخياً بقوتها في تدريس مواد الرياضيات والعلوم والتكنولوجيا، فإن المدرسة تمتلك أيضاً برنامج علوم انسانية عملي ومتنوع، بالإضافة إلى فرص تعليمية فريدة خارج الفصل الدراسي.

البرنامج الأكاديمي: يتضمن برنامج المدرسة الثري دورات دراسية مطلوبة للتخرج وتتيح لتلاميذها الفرصة لحضور العديد من الدورات الدراسية المتقدمة والمواد الاختيارية في العديد من المواضيع. وتشمل هذه الدورات الاختيارية البحث، وحساب التفاضل والتكامل والتفاضل (Multivariate Calculus)، والكيمياء العضوية، ودورة (Existentialism)، ودورة (Wall Street)، بالإضافة إلى طيف واسع من دورات الإلحاق المتقدم.

الأنشطة الإضافية خارج المنهج الدراسي: وتفتخر المدرسة بفرقها الرياضية الـ45 من الاتحاد الرياضي للمدارس العامة (PSAL) وبأنشطتها الكثيرة لما بعد الدوام الدراسي مثل نادي (Robotics)، وفريق الرياضيات، والخطابة والمناظرات، ومناقشة العلوم (Science Olympiad)، والشطرنج، ونموذج الأمم المتحدة، ونادي (Junior State of America). هناك عدد من المطبوعات الأساسية، وأكثر من 100 نادٍ تتم ادارتها من قبل التلاميذ، وحكومة فاعلة للتلاميذ. يمكن للتلاميذ المهتمين بالموسيقى المشاركة في الفرقة السيمفونية، والأوركسترا السيمفونية، وفرقة الجاز، وعدد من مجموعات الكورال.

الإلحاق للعام الدراسي 2016: قام (22,476) تلميذ(ة) بإدراج مدرسة (Stuyvesant High School) كخيارٍ لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وقد تم تقديم 950 عرض إلحاق.

FIGURE H. LAGUARDIA HIGH SCHOOL OF MUSIC & ART AND PERFORMING ARTS

100 Amsterdam Avenue, New York, New York 10023

الهاتف: 496-0700 (212) ■ موقع الويب: www.laguardiahs.org

البريد الإلكتروني: admissions@laguardiahs.org

تتمتع ثانوية لاغوارديا للفنون والموسيقى والفنون الأدائية (The Fiorello H. LaGuardia High School of Music & Art and Performing Arts) بسمعة عالمية كأول وأهم مدرسة تلتزم برعاية التلاميذ الموهوبين في الفنون. إن مهمة مدرسة (LaGuardia High School) المزودة هي تقديم تجربة تعليمية متوازنة بشكل فريد تشمل تدريباً متطلباً بأسلوب المعاهد الموسيقية وبرنامج أكاديمي صارم وشامل.

برامج الاستديو: يدرس التلاميذ الملتحقون ببرنامج الرقص الباليه والرقص الحديث؛ ودورات دراسية إضافية تتضمن تاريخ الرقص، وعلم الرقص، والرقص المسرحي (الإيقاعي والجاز)، وإدارة المهن، والمهارات المهنية. يدرس التلاميذ الملتحقون ببرنامج الدراما على تحضير المسرح من خلال دورات دراسية في التمثيل، والصوت والإلقاء، والتقنيات البدنية، وتاريخ المسرح، وتحليل النص. فيما يتعلق ببرنامج الفنون الجميلة، يحصل التلاميذ على سنتين من التدريب على المهارات والمجالات التقليدية، والتي تتضمن الرسم، والرسم بالألوان المائية، والتصميم الجغرافي، والرسم بالألوان الزيتية وألوان الإكريليك. ثم يكمل التلاميذ، بعد إنهاء دورات الفنون الأساسية، تعليمهم الفني من خلال حضور دورات متقدمة في المواد الدراسية المدرجة أعلاه بالإضافة إلى مواد اختيارية ممتعة أخرى، مثل الهندسة المعمارية، وتاريخ الفن، والسيراميك، ورسومات الحاسوب والرسم الجداري، والتصوير، وحرقة الطباعة، والنحت. يدرس التلاميذ الملتحقون ببرنامج

STATEN ISLAND TECHNICAL HIGH SCHOOL

485 Clawson Street, Staten Island, New York 10306

الهاتف: 667-3222 (718) ■ موقع الويب: www.siths.org

البريد الإلكتروني: BMalenfant@schools.nyc.gov

نظرة عامة: يقدم المنهج الدراسي لمدرسة Staten Island Technical High School التحضيري للكلية منهجاً قوياً بالفنون المتحررة يتضمن دورات في العلوم، والتكنولوجيا، والهندسة، والفنون، والرياضيات (STEAM)، وبرنامج متطور للغاية في التعليم المهني والتقني (CTE). يحصل جميع تلاميذ الصف التاسع على جهاز كمبيوتر للاستخدام داخل المدرسة ويأخذونه إلى المنزل لمدة أربع سنوات من خلال مبادرة 1:1 للتعليم الرقمي (Digital Education). ويقوم أكثر من 60% من طاقم التدريس بتعليم دورات الإلحاق المتقدم (AP) ودورات دراسية أخرى بمستوى الكلية.

البرنامج الأكاديمي: ويتقدم التلاميذ إلى ما هو أكثر من المنهج الدراسي الرئيسي من خلال دراسة منها أربع سنوات لمادة الرياضيات ومجموعة كبيرة من مواد العلوم والتكنولوجيا والهندسة والرياضيات (STEM) ودورات الإلحاق المتقدم في جميع النواحي الخاصة بالمواد، بالإضافة إلى خيار المشاركة في برنامج البحث الخاص بالعلوم والهندسة، الذي يشارك التلاميذ فيه بمناسبات معرض العلوم والهندسة لمدينة نيويورك، وبحث مواهب العلوم (Intel Science Talent Search)، ومناسبات جوجل وجودة الحياة (Google and Quality of Life). ويحضر جميع تلاميذ الصف التاسع دورة مكثفة في الكتابة، ومنهج برنامج English and Language Arts College Board Common Core-aligned Springboard لمهارات اللغة الإنكليزية المتوافق مع المعايير الأساسية المشتركة، والذي يعد جميع التلاميذ لمنهج دورات الإلحاق المتقدم في اللغة والأدب والإنشاء. ويتخرج جميع التلاميذ وقد أنهوا دورتين دراسيتين، أو ثلاثة دورات دراسية، من الإلحاق المتقدم (AP) على الأقل في مادة الدراسات الاجتماعية، بالإضافة إلى حضور ثلاث سنوات من دورات اللغة الروسية. كما توجد سنة رابعة اختيارية لدراسة لغة ثانية، لغة الماندرين، أو اللاتينية أو الألمانية أو الفرنسية أو الإيطالية أو الإسبانية، يتم تقديمها عن طريق برنامج تعليم مدمج.

يتميز برنامج التعليم المهني والتقني (CTE) بتقديم دورات في مواد دراسية هي تمهيد في الهندسة، وأوتوكاد (autoCAD)، والكرونيات الثنائية الرقمية المتناظرة، وهندسة استديو التلفزيون، وعلوم الكمبيوتر، بالإضافة إلى سلسلة شاملة حول التعلم في سياق العمل (WBL) واستكشاف للكلية والمسارات المهنية، وهي تتميز بتقديم محادثات حول المهنة، والمرافقة في العمل، ومعارض المهن والكلية، والبرامج التدريبية. يشارك جميع التلاميذ في برنامج التعليم المهني والتقني (CTE).

تزود الشراكات مع برنامج College Now من كلية CUNY، وبرنامج University in the High School من جامعة SUNY، وبرنامج St. John's University College Advantage وجامعة College of St. Rose التلاميذ بفرصة التخرج بعد تحصيل من 15 إلى 60 وحدة دراسية جامعية.

الأنشطة الإضافية خارج المنهج الدراسي: يتميز برنامج الأنشطة خارج المقر الدراسي بتقديم أكثر من 100 نادي ونشاط لما بعد الدوام الدراسي (مثل نادي الروبوت، ونادي المناظرات، ومناسبات (Science/ Russian Olympiad) و44 فريق من فرق الاتحاد الرياضي للمدارس العامة (PSAL). تشكل منظمة التلاميذ، وجمعية المتفوقين الوطنية، وبرنامج (Junior Statesmen of America) مصدرًا منتجاً لتلاميذنا القادة، في الوقت الذي يمكن فيه للتلاميذ المهتمين بالفنون المشاركة في تسع فرق فنية بما فيها فرقة الجاز، وفرقة الاستعراض العسكري والفرق الموسيقية، بالإضافة إلى فرق الانتاجات المسرحية.

الإلحاق للعام الدراسي 2016: قام (15,490) تلميذ(ة) بإدراج مدرسة (Staten Island Technical High School) كخيارٍ لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وقد تم تقديم 346 عرض إلحاق.

المسرح التقني تدريباً عملياً في نجارة ديكورات المشاهد، وتكنولوجيا الإضاءة، وإعداد الأزياء، وخصائص الصوت، وإدارة خشبة المسرح، والرسم التقني، والتصميم. يشارك تلاميذ المسرح التقني في كل من مجالات الإنتاج والأداء للعديد من الفعاليات بمدرسة لاغوارديا المجتمعية (LaGuardia High School). يدرس التلاميذ الملتحقون ببرنامج **موسيقى الآلات** وبرنامج **الموسيقى الصوتية** الغناء الارتجالي، ونظرية الموسيقى، وتاريخ الموسيقى. تتضمن مجموعات الأداء لاستوديو موسيقى الآلات أربع فرق أوركسترا سيمفونية، وفرقتين اثنتين من الفرق الموسيقية، وفرقتي موسيقى الجاز، وثلاث فرق أوركسترا (pit orchestras). تتوفر أيضاً الفرصة للتلاميذ لتأليف مقطوعات موسيقية أصلية، وقيادة الفرقة التي تعزفها، وأدائها.

وتشتمل المجموعات الأدينية لاستديو الموسيقى الصوتية على فرق للمبتدئين وفرق مختلطة تتضمن الفتيات والسيدات وتلاميذ صف التخرج، والغوسيل؛ والعروض المسرحية التصويرية والأعمال المسرحية الموسيقية. وفي فصول الغناء، يتلقى التلاميذ التدريب على الأعمال الموسيقية الغنائية الإيطالية، والألمانية، والفرنسية. تتضمن الدورات الدراسية الموسيقية الاختيارية موسيقى الحجرة، والغيثار، وتقنيات الموسيقى، وكتابة الأغاني.

يتطلب كل استوديو تخصيص قدر كبير من الوقت للعمل بعد اليوم الدراسي، بما في ذلك البروفات والعروض الأدينية، بالإضافة إلى التطبيق العملي لتقنيات المسرح التقني وتقنيات إدارة المعارض الفنية. يتوقع من التلاميذ الدوام لأيام دراسية مطوّلة في أوقات العروض، كما يطلب منهم الحضور والمشاركة في العروض والأنشطة المدرسية المتعلقة بالبرنامج في فترة ما بعد الدوام الدراسي.

وستُجرى تجارب الأداء في مقر المدرسة. يجب أن يقوم التلميذ(ة) بالتسجيل عند الموجه الإرشادي الخاص به لخوض تجارب الأداء. انظر الصفحات 12-13 للإطلاع على المعلومات المتعلقة بتجربة الأداء لمدرسة LaGuardia.

البرنامج الأكاديمي: يتجاوز تلاميذ LaGuardia High School معايير مدينة نيويورك للاستعداد للكليات والمسارات المهنية. وتعمل هذه المعايير، كما حددتها وزارة التعليم، على "تحديد المهارات والإنجازات التي يحتاجها التلاميذ للالتحاق بالجامعة، ومواصلة التعلم وتحقيق نجاح بها، وكذلك الحال بالنسبة للفرص التدريبية لمرحلة ما بعد التعليم الثانوي، والاستفادة مما يتم تعلمه في الحصول على وظائف مهمة." يشتمل البرنامج الأكاديمي الدقيق للمدرسة على الدورات الدراسية اللازمة للتخرج، ودورات دراسية تُحتسب كوحدة دراسية جامعية في CUNY بالإضافة إلى ما يزيد على 20 دورة إلحاق متقدم (AP) في المواد الآتية: اللغة الإنكليزية والأدب الإنجليزي واللغة والثقافة باللغة الإيطالية واللغة الفرنسية واللغة الإسبانية والتفاضل والتكامل والإحصاء والأحياء والكيمياء وعلوم البيئة وعلم النفس والفيزياء والحكم والسياسة وتاريخ الولايات المتحدة والجغرافية البشرية وتاريخ العالم

وتاريخ الفن وفن الاستوديو ونظرية الموسيقى. ويُكمل التلاميذ مواد هذه الدورة الدراسية بالإضافة إلى المواد الأساسية الخاصة بالاستوديو.

الأنشطة الإضافية خارج المنهاج الدراسي: ويشترك التلاميذ بشكل فعال في فرق 21 رياضة من رياضات الاتحاد الرياضي للمدارس العامة (PSAL) بالإضافة إلى مجموعة كبيرة من أنشطة ما بعد الدوام الدراسي مثل فريق الرياضيات، والخطابة والمناظرات، ومناقسة العلوم (Science Olympiad)، والشطرنج، ونموذج الأمم المتحدة و ARCHAON و ARISTA Honor Societies. يُشارك التلاميذ في أكثر من 50 نادٍ يديره التلاميذ، وإدارة فاعلة من التلاميذ.

الإلحاق للعام الدراسي 2016: حصل 1,148 تلميذ(ة) على عرض واحد أو أكثر للإلحاق ببرامج ثانوية لاغوارديا (LaGuardia High School)، من أصل مجموعة من 12,826 تلميذ(ة).

يتعين على جميع التلاميذ المؤهلين الحاليين في الصف الثامن، والصف التاسع لأول مرة في المدارس العامة والخاصة والأبرشية والذين يقدمون طلبات الالتحاق إلى مدرسة واحدة أو أكثر من المدارس الثانوية المتخصصة في مدينة نيويورك (باستثناء مدرسة LaGuardia High School) الخضوع لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT). وقد خاض قرابة 28,500 تلميذ(ة) اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) للإحراق في شهر أيلول/سبتمبر 2016.

يتعين على التلاميذ الراغبين بخوض اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) التحدث إلى الموجه الإرشادي الخاص بهم أثناء فترة طلبات إجراء الاختبار (RFT).

سيتم إصدار بطاقات الاختبار للتلاميذ، يُذكر فيها التاريخ، والوقت، والمكان المحدد لاختبار التلميذ.

يتعين على التلاميذ خوض الاختبار في التاريخ والمكان المعينين لهم. أماكن الاختبار محددة في الصفحة 11، ويتم تحديد موقع الاختبار للتلاميذ استناداً إلى المنطقة التعليمية الجغرافية التي تقع فيها مدرسة التلميذ. يتعين إخبار الموجه الإرشادي للتلميذ(ة) بأي تعارض في المواعيد قبل موعد الاختبار.

19 تشرين الأول/أكتوبر 2016

بطاقات الاختبار متوفرة للتوزيع

8 أيلول/سبتمبر - 15 تشرين الأول/أكتوبر 2016

فترة طلبات إجراء الاختبار (RFT)

يسجل التلاميذ لخوض اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) وتجارب أداء مدرسة LaGuardia High School بمساعدة الموجهين الإرشاديين.

تواريخ الاختبارات (يرجى الرجوع إلى الصفحة رقم 11 لمعرفة الأماكن)

السبت، 22 تشرين الأول/أكتوبر 2016

الأحد، 23 تشرين الأول/أكتوبر 2016

جميع تلاميذ الصف الثامن الحاليين

الأحد، 29 تشرين الأول/أكتوبر، 2016

السبت، 5 تشرين الثاني/نوفمبر 2016

جميع تلاميذ الصف التاسع الحاليين

تلاميذ الصفين 8 و9 من متعلمي اللغة الإنكليزية أو التلاميذ ذوي الإعاقات ممن لديهم برامج التعليم الفردية (IEP) أو خطط الفقرة 504.* طلبات الاختبارات التعويضية

نهاية صيف عام 2017

التلاميذ الوافدون حديثاً إلى مدينة نيويورك (يتعين أن تثبت السجلات وصول التلميذ إلى مدينة نيويورك بعد موعد الاختبار التعويضي في شهر نوفمبر/تشرين الثاني).

تاريخ الاختبار البديل

يتعين على التلاميذ إعلام الموجه الإرشادي الخاص بهم في حال طلبهم موعد اختبار لا يتعارض مع الشعائر الدينية يومي السبت أو الأحد، وذلك خلال فترة طلبات إجراء الاختبار. وفي حال كون التاريخ الوارد ببطاقة أحد التلاميذ غير مناسباً، يتعين على التلميذ التحدث إلى الموجه الإرشادي الخاص به حتى يتم تعديل البطاقة.

إذا كان التلميذ مريضاً وغير قادر على خوض الاختبار في التاريخ المحدد، يتعين عليه إخطار الموجه الإرشادي الخاص به فوراً عند العودة إلى المدرسة، وإحضار الوثائق الطبية، وطلب تحديد موعد اختبار تعويضي لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) عن طريق الموجه الإرشادي.

الوثائق المطلوبة لتأكيد مصداقية طلب الاختبار التعويضي. يجب أن يقدم الموجهون الإرشاديون الطلاب مع الوثائق المطلوبة بتاريخ 26 أكتوبر/تشرين الأول للاختبار المجدول بتاريخ 30 أكتوبر/تشرين الأول، وفي الأول من نوفمبر/تشرين الثاني للاختبار المجدول بتاريخ 5 نوفمبر/تشرين الثاني.

*يتوفر المزيد من المعلومات حول التلاميذ متعلمي اللغة الإنكليزية والتلاميذ السابقين من متعلمي اللغة الإنكليزية في الصفحة 15.

تواريخ ومواقع اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) تابع...

مواقع تقديم الاختبار		
العنوان	موقع الاختبار	يحضر تلاميذ الصف 8 والصف 9 بالمدارس الكائنة في:
312-4800 (212) الهاتف: 345 Chambers Street, New York, NY 10282 بقطار الأنفاق: 1, 2, 3, A, C, E إلى شارع (Chambers Street)؛ R إلى (City Hall) بالحافلة: M20, M22, M5, M9, X1, X10	Stuyvesant High School	Manhattan
(718) 817-7700 الهاتف: 75 West 205 Street, Bronx, NY 10468 بقطار الأنفاق: 4، إلى Bedford Park Boulevard-Lehman College؛ B, D إلى Bedford Park Boulevard بالحافلة: Bx1, Bx10, Bx2, Bx22, Bx26, Bx28, Bx3	The Bronx High School of Science	Bronx
(718) 804-6400 الهاتف: 29 Fort Greene Place, Brooklyn, NY 11217 بقطار الأنفاق: 2, 3, 4, 5 إلى Nevins Street؛ A إلى Hoyt & Schermerhorn؛ B, Q, R إلى Atlantic Avenue-Barclays Center؛ D, N إلى Lafayette Avenue؛ C إلى DeKalb Avenue؛ G إلى Fulton Street بالحافلة: B103, B25, B38, B41, B45, B52, B54, B62, B63, B65, B69	Brooklyn Technical High School	المناطق التعليمية 13، 14، 15، 16، 17، 21، 22، 32، Brooklyn 20
758-7200 (718) الهاتف: 3787 Bedford Avenue, Brooklyn, NY 11229 بقطار الأنفاق: B, Q إلى Kings Highway بالحافلة: B100, B2, B31, B44, B49, B7, B82, BM3, BM4	James Madison High School	المناطق التعليمية 18، 21، 22، Brooklyn 23
(718) 658-5407 الهاتف: 160-05 Highland Avenue, Jamaica, NY 11432 بقطار الأنفاق: E, J, Z إلى محطة (Jamaica Center-Parsons/Archer)؛ F إلى محطة Parsons Boulevard بالحافلة: Q1, Q110, Q111, Q112, Q114, Q17, Q2, Q20A, Q20B, Q24, Q3, Q31, Q34, Q36, Q40, Q41, Q43, Q56, Q6, Q65, Q76, Q77, Q8, Q83, Q9, X68	Hillcrest High School	المنطقة التعليمية رقم 19 Brooklyn المناطق التعليمية رقم 27، 28، Queens 29
(718) 545-7095 الهاتف: 14-30 Broadway, Long Island City, NY 11106 بقطار الأنفاق: N, Q إلى محطة (Broadway) بالحافلة: Q100, Q102, Q103, Q104, Q18, Q66, Q69	Long Island City High School	المناطق التعليمية رقم 24، 25، Queens 30، 26
(718) 667-3222 الهاتف: 485 Clawson Street, Staten Island, NY 10306 بقطار الأنفاق: قطار ستاتن آيلاند (SIR) إلى محطة (New Dorp) بالحافلة: S57, S74, S76, S78, S79-SBS	Staten Island Technical High School	Staten Island

ملحوظة: لن تكون كافة المواقع متاحة في يوم 5 تشرين الثاني/نوفمبر. الرجاء التحقق من بطاقة الاختبار الخاصة بك لمعرفة موقع الاختبار بدقة.

نتائج الاختبارات

الرجاء الانتباه إلى أن اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) ليس مطلوباً للإلحاق بمدرسة (LaGuardia High School). بالنسبة لجميع المدارس الثانوية المتخصصة الأخرى، يتم تقديم عروض الإلحاق للتلاميذ بناءً على درجاتهم في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وعلى كيفية ترتيب المدارس الثانوية المتخصصة في ورقة الإجابة لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، وعلى توفر المقاعد. سوف تتوفر درجات اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) في شهر آذار/مارس 2017 مع نتائج الجولة الأولى من القبول بالمدارس الثانوية. لاتخاذ القرار بشأن تقديم عروض الإلحاق بالمدارس الثانوية المتخصصة:

- يتم ترتيب جميع درجات الاختبار للتلاميذ الذين خضعوا للاختبار من الدرجات الأعلى إلى الأدنى.
- يتم وضع التلميذ الحاصل على أعلى نتيجة مع المدرسة الواردة باختياره الأول (المدرسة ذات المرتبة الأولى في قائمة اختياره).
- ثم يتم إلحاق كل تلميذ بدوره نزولاً من أعلى درجة، في المدرسة التي أعطاها الأولوية وما زال فيها مقاعد شاغرة. ولذلك، فإذا كان قد تم توفير المقاعد في المدرسة التي كانت الاختبار الأول لتلميذ ما، لتلاميذ حصلوا على درجة أعلى منه في الاختبار، فسيتم إلحاقه بالمدرسة التي أدرجها كخيار ثانٍ في قائمة اختياره إذا توفرت فيها مقاعد شاغرة. إذا كان قد تم منح جميع المقاعد في المدرسة، التي كانت اختياره الثاني، لتلاميذ حصلوا على درجات أعلى منه، فسيتم منحه مقعد في المدرسة التي وضعها في المرتبة الثالثة في قائمة اختياره إذا توفرت مقاعد شاغرة فيها وهكذا. وتتواصل العملية حتى يتم شغل كافة المقاعد المتوفرة في أي من المدارس الثانوية المتخصصة الثمانية حيث يقوم الإلحاق على اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT).

تتغير أعداد المقاعد المتاحة والمتوقعة في كل من المدارس الثانوية المتخصصة من عام إلى آخر، فقد تزيد أو تنقص بناءً على عملية القيد بالمدرسة.

19 تشرين الأول/أكتوبر 2016
بطاقات تجارب الأداء متوفرة للتوزيع

8 أيلول/ سبتمبر - 13 تشرين الأول/ أكتوبر 2016 قم بالتسجيل لأداء تجربة (تجارب)
الأداء لمدرسة (LaGuardia High School) عند الموجة الإرشادي الخاص بك.

تواريخ تجربة الأداء لعام 2016-2017

تعقد جميع تجارب الأداء بمقر ثانوية لاغوارديا (LaGuardia High School). لقد تم تحديد التواريخ وفقاً للحي الذي تقع فيه مدرستك، وليس وفقاً لعنوان منزلك الراهن، وحسب الحرف الأول من اسمك الأخير.

الحي	الاسم الأخير	مجموعة تجربة الأداء	التاريخ	وقت البدء
Bronx	A-L	التلاميذ الذين يؤدون تجربة أداء للرقص	السبت، 5 تشرين الثاني/ نوفمبر 2016	8:00 صباحاً
Bronx	M-Z	التلاميذ الذين يؤدون تجربة أداء للرقص	الأحد، 6 تشرين الثاني/ نوفمبر 2016	8:00 صباحاً
Bronx	A-Z	التلاميذ الذين يؤدون تجربة أداء لاستوديو واحد فقط أو عدة استوديوهات باستثناء الرقص	السبت، 3 كانون الأول/ديسمبر 2016	8:00 صباحاً
Brooklyn	A-Z	التلاميذ الذين يؤدون تجربة الأداء لاستوديوهين أو أكثر أو للمسرح التقني	السبت، 29 تشرين الأول/ أكتوبر 2016	8:00 صباحاً
Brooklyn	A-L	التلاميذ الذين يؤدون تجربة أداء لاستوديو واحد فيما عدا المسرح التقني	الأحد، 30 تشرين الأول/ أكتوبر، 2016	8:00 صباحاً
Brooklyn	M-Z	التلاميذ الذين يؤدون تجربة أداء لاستوديو واحد فيما عدا المسرح التقني	الأحد، 30 تشرين الأول/ أكتوبر، 2016	11:30 صباحاً
Manhattan	A-Z	التلاميذ الذين يؤدون تجربة الأداء لاستوديوهين أو أكثر أو للمسرح التقني	السبت، 5 تشرين الثاني/ نوفمبر 2016	8:00 صباحاً
Manhattan	A-L	التلاميذ الذين يؤدون تجربة أداء لاستوديو واحد فيما عدا المسرح التقني	الأحد، 6 تشرين الثاني/ نوفمبر 2016	8:00 صباحاً
Manhattan	M-Z	التلاميذ الذين يؤدون تجربة أداء لاستوديو واحد فيما عدا المسرح التقني	الأحد، 6 تشرين الثاني/ نوفمبر 2016	11:30 صباحاً
Queens/Staten Island	A-Z	التلاميذ الذين يؤدون تجربة الأداء لاستوديوهين أو أكثر أو للمسرح التقني	السبت، 19 تشرين الثاني/ نوفمبر، 2016	8:00 صباحاً
Queens/Staten Island	A-K	التلاميذ الذين يؤدون تجربة أداء لاستوديو واحد فيما عدا المسرح التقني	الأحد، 20 تشرين الثاني/نوفمبر 2016	8:00 صباحاً
Queens/Staten Island	L-Z	التلاميذ الذين يؤدون تجربة أداء لاستوديو واحد فيما عدا المسرح التقني	الأحد، 20 تشرين الثاني/نوفمبر 2016	11:30 صباحاً

عملية القبول

■ يعتمد القبول بمدرسة LaGuardia High School على تجربة أداء تنافسية ومراجعة السجلات الأكاديمية للتعلم لضمان النجاح في كل من عمل الاستوديو المطلوب بالمدرسة وبرنامجها الأكاديمي الصعب.

■ لتقديم تجربة أداء لاستوديو واحد أو أكثر في مدرسة LaGuardia High School، يتعين على التلاميذ إخطار الموجه الإرشادي برغبتهم في خوض تجارب أداء وتحديد الاستوديوهات التي يرغبون بتقديم تجارب الأداء لها. وسوف يقوم الموجهون الإرشاديون بإعطاء التلاميذ إيصالات استلام تعكس طلباتهم أثناء فترة تقديم طلبات إجراء الاختبار (RFT)، كما سيعطونهم بطاقة تجارب الأداء قبل تاريخ تجربة الأداء.

■ يتوقع من المرشحين الناجحين أن يكون مستوى كفاءتهم بمجالاتهم الفنية من متوسط إلى متقدم. يتم تقييم التلاميذ بناءً على تحضيرهم لتجربة الأداء ومدى التزامهم بنوع الفن الذي يمارسونه، والإجادة التقنية، والتعبير الفني. يحقق عادةً معظم التلاميذ الذين يحصلون على عرض الحاقق في استوديو واحد أو أكثر درجة تتراوح بين 80-100 درجة في قواعد الاستوديو بالإضافة إلى حيازة سجل أكاديمي مرضٍ.

استثناءات تجربة الأداء

إذا تعارض تاريخ تجربة الأداء للتعلم مع إحدى الشعائر الدينية، يمكن للتلميذ تقديم تجربة الأداء إما يوم السبت أو الأحد في عطلة نهاية الأسبوع المحددة لمدرسته.

إذا كان موعد اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) لتلميذ ما يتعارض مع موعد تجربة الأداء الخاصة به في مدرسة LaGuardia High School audition، فيجب على التلميذ الاتصال بمدرسة LaGuardia High School بواسطة الهاتف أو البريد الإلكتروني لتحديد موعد آخر لتجربة الأداء.

قد تطلب مدرسة LaGuardia High School تقريراً طبياً للتلاميذ الذين يرغبون في تحديد موعد آخر بسبب مرض/إصابة.

تجارب الأداء للتلاميذ الجدد في مدينة نيويورك

نهاية صيف 2017 (يجب أن تشير السجلات الرسمية إلى أن التلميذ أصبح مقيماً في مدينة نيويورك بعد الأول من تشرين الثاني/نوفمبر، 2016).

معلومات تجارب الأداء لكل استوديو

خاص 12826 تلميذ تجربة الأداء لمدرسة LaGuardia High School من أجل الحصول على عرض التحاق بواحد أو أكثر من استوديوهات المدرسة السنة للعام الدراسي 2016-2017. يمكن للتلاميذ خوض تجارب الأداء للاستوديوهات المدرجة أدناه. يتأهل فقط التلاميذ المقيمين في مدينة نيويورك للتقديم وخوض تجارب الأداء.

الرقص يشارك التلاميذ في كل من دروس رقص الباليه والرقص الحديث. على المتقدمين من الفتيات ارتداء ثوب الجمناز، أو جوارب مرنة أو لا تغطي منطقة القدم و حذاء الباليه. وعلى المتقدمين الذكور ارتداء قميص (t-shirt) ضيق على مقاس الجسم، وبنطال أسود ضيق، أو بنطال رياضي ضيق لون أسود، أو جرابات طويلة (tights)، و حذاء خاص بالباليه. يتم تقييم إمكانية التلاميذ للنجاح في التدريب الخاص الذي يتم تقديمه.

الدراما ينبغي على المتقدمين أن يكونوا مستعدين لأداء مقطوعتي مولوج متغيرتين مدة كل منهما دقيقة واحدة. وسوف يُطلب من المتقدمين القيام بقراءة ارتجالية بالإضافة إلى إجراء مقابلة. ينبغي للملايين أن تسمح بحرية الحركة، حيث قد يُطلب من مقدمي الطلبات استعراض مدى رشاقة حركتهم.

الفنون الجميلة يجب على المتقدمين إحضار حافظة أعمال تضم من 8 إلى 15 عملاً فنياً أصلياً منجزاً في وسائط متنوعة. يجب أن يكون العمل الفني وليد الملاحظات، والخيال، والذاكرة، وأن يكون معنوياً بشكل مناسب. يمكن تضمين صور فوتوغرافية- وليس الأصل- لأعمال ثلاثية الأبعاد (3D). بالنسبة لتجربة الأداء، سيتم تكليف التلاميذ بإنجاز 3 أعمال رسم، تتضمن رسماً لشخصية إنسانية من الملاحظة، ورسم صورة طبيعية من الذاكرة، ورسم بالألوان من الخيال. وسوف يتم توفير جميع المواد اللازمة لتجارب الأداء من قبل المدرسة وقت تجربة الأداء.

موسيقى الآلات يتعين على المتقدمين إعداد مقطوعة عزف منفرد لأدائها من دون مرافقة موسيقية وإحضار نسخة واحدة من الموسيقى التي يخططون لعزفها. يتعين على التلاميذ إحضار الآتهم الموسيقية لتجربة الأداء، باستثناء أولئك الذين يؤدون تجربة أداء على البيانو، أو آلات النقر، أو آلة البوق، أو الكمان الكبير، أو القيثارة. ستوفر المدرسة هذه الآلات وقت تجربة الأداء. سيتم توفير مكبرات الصوت للتلاميذ الذين يعزفون على الغيتار الكهربائي. سيتم اختبار المتقدمين في الذاكرة الإيقاعية والنغمية وسيطلب منهم إتمام مهمة قراءة منظورة لمقطوعة تُعطى لهم.

المسرح التقني من المتوقع من المتقدمين إحضار نموذج تصميم/ديوراما مُعد ثلاثي الأبعاد بهدف العرض التقديمي مع صورة فوتوغرافية من الديوراما. وسيطلب منهم المشاركة بشكل مباشر في مجموعة صغيرة بنشاط عملي في مجال واحد أو أكثر من أنشطة المسرح التقني.

الموسيقى الصوتية يتعين على المتقدمين إعداد أغنية لغنائها بدون الآلات الموسيقية في تجربة الأداء. يمكن للمختارات الموسيقية أن تكون كلاسيكية أو شعبية من حيث الأسلوب. سيطلب من المتقدمين في تجربة الأداء إعادة غناء أنماط لحنية وتكرار أنماط إيقاعية. مدرسة LaGuardia High School لديها قائمة من الأغاني المقترحة على الإنترنت على الرابط (www.laguardiahs.org) ولا يلزم المتقدمون الاختيار من هذه القائمة.

يتعين أن يحضر جميع المتقدمين بطاقة تجربة الأداء الخاصة بهم إلى كل تجربة أداء من أجل الدخول. لا تقبل الإيصالات المطبوعة من طلب إجراء الاختبار (RFT). بالنسبة للتلاميذ ممن يحضرون في مدارس غير حكومية (سواء مدارس خاصة، أو مدارس أبرشية)، مطلوب منهم نسخة من بطاقة تقرير كشف الدرجات للسنة الأكاديمية السابقة و/ أو سجل العلامات لكل تجربة أداء للاستوديو الذي تم تسجيل التلميذ لخوضها. على سبيل المثال، إذا كان التلميذ يخوض تجارب الأداء لاستوديوهين اثنين، يتعين عليه إذا حضرنا نسختين اثنتين من بطاقة تجربة الأداء وتقرير كشف الدرجات. يتم تقييم التلاميذ باعتبار النتائج الرسمية فقط المحصل عليها في العام الدراسي الماضي. لن يتم إعادة التقييم بناءً على أي تحسن في الأداء الأكاديمي لاحقاً.

التسجيل لخوض تجارب الأداء بمدرسة (LAGUARDIA HIGH SCHOOL)

إذا كان التلاميذ يرغبون بتقديم طلب إلى واحد أو أكثر من الاستديوهات السنة في مدرسة LaGuardia High School، يجب عليهم مراجعة شروط تجارب الأداء الواردة في هذا الكتيب وكذلك في دليل المدارس الثانوية لمدينة نيويورك للعام 2017 من أجل التحضير لتجارب الأداء.

وبالنسبة للتلاميذ المسجلين لأكثر من استوديوهين اثنين، فقد تطلب منهم مدرسة LaGuardia High School إجراء تجارب الأداء لأكثر من يوم واحد. يتعين على التلاميذ سؤال الموجهين الإرشاديين الخاصين بهم للمتابعة بشكل مباشر مع مدرسة لاغوارديا (LaGuardia High School) إذا كانوا مسجلين لأكثر من استوديوهين.

يحصل التلاميذ متعلمو اللغة الإنكليزية (ELL) المؤهلون للحصول على تسهيلات الاختبار والتلاميذ من ذوي الإعاقة، ممن تُقدم خطط التعليم الفردية (IEP) الخاصة بهم أو خطط 504 للحصول على تسهيلات الاختبار، على تلك التسهيلات لتجارب أداء مدرسة LaGuardia High School طالما كانت التسهيلات لا تؤثر على المحتوى أو المهارة التي يتم تقييمها.

يجب على التلاميذ من ذوي الإعاقة أو التلاميذ متعلمي اللغة الإنكليزية والتلاميذ المؤهلين من متعلمي اللغة الإنكليزية السابقين، ممن يستخدموا التسهيلات الخاصة بهم لتجارب الأداء بمدرسة LaGuardia High School، إرسال أية وثائق متعلقة بالتسهيلات إلى LaGuardia High School مباشرة قبل الموعد النهائي لطلب إجراء الاختبار (RFT) (مثلاً خطة التعليم الفردي للتلميذ، أو خطة 504، أو خطاب موقع على رأسية تفاصيل المدرسة ويصف مساعدات متعلمي اللغة الإنكليزية التي حصل عليها التلميذ في بيئة مدرسية). يمكن إرسال الوثائق إلى مدرسة LaGuardia High School عبر الفاكس على الرقم 212-724-5748 أو إرسالها عبر البريد الإلكتروني إلى admissions@laguardiahs.org.

يجب أن يصل التلاميذ في الوقت المحدد لتجارب الأداء، بالرغم من أن الوقت المذكور في بطاقة تجربة الأداء قد لا يكون الوقت الفعلي لبدء تجربة الأداء. ويجب أن يحضر التلاميذ معهم وجبة خفيفة و/ أو ماء.

وخلال تجارب الأداء، توجد منطقة مخصصة للانتظار/الاجتماع للآباء وأولياء الأمور، حيث لا يسمح لهم بالتواجد في المناطق المخصصة لتجارب الأداء. ويسمح أيضاً للآباء/ وأولياء الأمور بمغادرة مبنى المدرسة والعودة إليه في أي وقت. من المهم أن يكون مع التلاميذ طعام وماء وأن يتم الاتصال مع العائلات قبل بدء عملية تجربة الأداء.

5 أحضر اختبار القبول بالمدارس الثانوية المتخصصة

(SHSAT) أو تجربة الأداء

يتعين على التلاميذ ممن يخوضون اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) إحضار بطاقة الاختبار إلى الموقع المحدد لهم لإجراء الاختبار في يوم الاختبار. يجب على التلاميذ الذين يخوضون تجربة الأداء لاستوديو واحد أو أكثر في مدرسة (LaGuardia High School) إحضار بطاقات تجارب الأداء معهم إلى تجربة الأداء أيضاً.

قد لا يسمح للتلاميذ الذين يصلون لموقع الاختبار من دون البطاقة الاختبارية أو بطاقة تجربة الأداء، بخوض الاختبار أو تجربة الأداء. وبالرغم من أن مقرات الاختبار ستبذل قصارى جهدها للتأكد من تسجيل التلاميذ ولخدمة التلاميذ الذين ليس معهم بطاقة اختبارية، إلا أنه قد يكون هناك حاجة لترتيب موعد آخر للاختبار أو تجربة الأداء. يجب على التلاميذ الوصول في الوقت الوارد في بطاقة الاختبار أو بطاقة تجربة الأداء؛ ولكن من المهم الانتباه إلى أن الاختبار أو تجربة الأداء قد يبدأ بعد وقت الوصول المدرج في بطاقة الاختبار أو تجربة الأداء.

يسمح للتلاميذ بإحضار الهوائف الخليوية إلى اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) و/ أو إلى مدرسة لاغوارديا (LaGuardia High School)، غير أنه يجب إطفاءها وعدم استخدامها داخل البناء المدرسي. لا يسمح بأية أجهزة إلكترونية أخرى. يجب أن يكون التلاميذ مستعدين لإغلاق هواتفهم الخليوية قبل بدء اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) أو تجربة الأداء.

ويمكن للتلاميذ إحضار وجبة خفيفة وعبوة مياه إلى كل من اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) وتجارب الأداء بمدرسة لاغوارديا (LaGuardia High School)، غير أن طاقم العمل بالاختبار وتجارب الأداء بما في ذلك مراقبي الاختبار ولجان التحكيم، هم من يقررون وقت السماح بتناولها.

الحصول على النتائج

يتعين أن يكون التلاميذ مقيمين في مدينة نيويورك للحصول على نتائج اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) و/ أو عروض الالتحاق باستديوهات مدرسة LaGuardia High School. وسوف يتم إخطار التلاميذ في شهر آذار/ مارس 2017، من خلال خطابات نتائج الجولة الأولى للإلحاق بالمدارس الثانوية، بما إذا كانوا قد حصلوا على عرض (عروض) للمدارس الثانوية المتخصصة. من الممكن للتلاميذ الذين قُدموا تجارب أداء لاستوديو واحد أو أكثر في ثانوية لاغوارديا (LaGuardia High School)، الحصول على عرض من واحد أو أكثر من استوديوهات ثانوية (LaGuardia High School). من الممكن بالنسبة للتلاميذ الذين يحصلون على عروض التحاق بالمدارس الثانوية المتخصصة، الحصول في الوقت نفسه على عرض من أحد اختيارات المدارس الثانوية الأخرى التي أدرجوها في طلب القبول بالمدارس الثانوية في مدينة نيويورك. وعندئذ، يتعين على التلاميذ الاختيار ما بين عروض المدارس الثانوية المتخصصة وعرض طلب القبول بالمدارس الثانوية.

يعتبر التلاميذ من ذوي الإعاقة الذين لديهم برامج تعليم فردية (IEP) أو خطط الفقرة 504 والتلاميذ متعلمي اللغة الإنكليزية بما فيهم التلاميذ الحاليين والسابقين الذين حققوا الكفاءة في اختبار ولاية نيويورك لتقييم الإنجاز في اللغة الإنكليزية كلغة ثانية (NYSESLAT) خلال السنتين السابقتين، مؤهلين للحصول على تسهيلات الاختبار و/ أو تجارب الأداء في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) وتجارب الأداء لمدرسة LaGuardia High School.

1 اتصل بالموجّه الإرشادي

يتعين على التلاميذ الاتصال بالموجّه الإرشادي الخاص بهم للافصاح عن نيّتهم بخوض اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) و/ أو تجربة الأداء لمدرسة لاغوارديا (LaGuardia High School) ضمن الفترة المحددة لطلب إجراء الاختبار (RFT)، وذلك بدءاً من شهر أيلول/ سبتمبر.

2 الحصول على بطاقة لدخول الاختبار أو تجربة الأداء

سوف يقوم الموجهون الإرشاديون بالمدرسة، قبل تاريخ الاختبار/ تجربة الأداء، بإعطاء التلاميذ بطاقات الدخول إلى اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) و/ أو بطاقات تجارب الأداء في مدرسة LaGuardia High School. وتشير هذه البطاقة إلى موقع الاختبار/ أو تجربة الأداء، والتاريخ والوقت الخاص باختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)/ تجربة الأداء، ورقم هوية التلميذ، ورقم رمز المدرسة والمدرسة الراهنة للتلميذ(ة). إذا كان هناك تعارض لدى التلميذ بين موعد الاختبار أو موعد تجربة الأداء، يتعين على التلميذ إخبار الموجه الإرشادي مباشرة من أجل الترتيب لموعد بديل للاختبار أو لتجربة الأداء. بعد إصدار بطاقات الاختبار أو تجارب الأداء، يتوقع من التلاميذ الحضور للاختبار في التاريخ والوقت المحددين في البطاقة الخاصة بهم. يعتمد موقع اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) على موقع مدرسة التلميذ(ة) الحالية، وليس على عنوان المنزل. وتعتمد أوقات وتواريخ تجارب الأداء لمدرسة لاغوارديا (LaGuardia High School) على الحي الذي توجد في مدرسة التلميذ(ة) الحالية.

3 راجع بطاقة الاختبار أو تجربة الأداء

يتعين على التلاميذ والآباء/ أولياء الأمور مراجعة جميع المعلومات الموجودة في بطاقة الاختبار أو تجربة الأداء للتحقق من دقتها. يتعين على التلاميذ متعلمي اللغة الإنكليزية والتلاميذ من ذوي الإعاقة فحص بطاقة الاختبار الخاصة بهم والتأكد من أنهم سيخضعون للاختبار في التاريخ المناسب (راجع صفحتي 10 و 11) مع الحصول على التسهيلات المناسبة. ويجب عليهم إخطار الموجه الإرشادي الخاص بهم فوراً إذا كانت هناك أية أخطاء في بطاقة الاختبار أو تجربة الأداء.

4 قُم بتعبئة بطاقة الاختبار أو تجربة الأداء وأطلب من الوالد/ ولي الأمر توقيعها

يتعين على التلاميذ والآباء وأولياء الأمور التوقيع على بطاقة الاختبار أو تجربة الأداء قبل موعد الاختبار أو موعد تجربة الأداء. يتعين على التلاميذ الذين يخوضون اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، إدراج ثمانية مدارس ثانوية متخصصة يرغبون بالإلحاق بها بحسب الأولوية. وسوف يقوم التلاميذ بنسخ اختياراتهم إلى ورقة الإجابة في يوم الاختبار. يمكن للتلاميذ اختيار التقديم للإلحاق بمدرسة واحدة فقط، أو اختيار التقديم للإلحاق بالمدارس الثمانية جميعها، لزيادة فرصهم في الحصول على مقعد في إحدى المدارس الثانوية المتخصصة. يتعين على التلاميذ إدراج المدارس التي يرغبون بالإلتحاق بها إذا تم منحهم مقعد فيها. لا يمكن تغيير الخيارات بعد تسليمك لها في يوم الاختبار. تظهر بطاقة تجربة الأداء لمدرسة لاغوارديا (LaGuardia High School Audition) الاستوديوهات (هاتف) التي طلب التلميذ(ة) خوض تجربة الأداء لها عند تقديم طلب إجراء الاختبار (RFT). يجب أن يقوم التلاميذ بإحضار نسخة من بطاقة تجربة الأداء لكل تجربة أداء يقومون بها.

تسهيلات الاختبار وتجارب الأداء

في موقع تقديم الاختبار باللغات التسع الرئيسية لادارة التعليم لمدينة نيويورك (NYCDOE): العربية، والبغالية، والصينية (التقليدية والمبسطة)، والفرنسية، وكريول هايتي، والكورية، والروسية، والإسبانية، والأوردو. لا يسمح للتلاميذ بإحضار مسارد الرياضيات مزدوجة اللغة الخاصة بهم. يمكن العثور على عينة من المسارد على الموقع الإلكتروني لاختبارات قبول إدارة التعليم لمدينة نيويورك للمدارس الثانوية المتخصصة (SHSAT) على الرابط: <http://schools.nyc.gov/accountability/resources/testing/shsat.htm>

وسوف يحصل التلاميذ متعلمو اللغة الإنكليزية الذين لديهم برامج التعليم الفردية (IEP) أو خطط 504 على التسهيلات المخولين للحصول عليها، ما دامت هذه التسهيلات مسموح بها لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) (انظر القسم التالي).

بالنسبة للتلاميذ الذين تحدد برامج التعليم الفردية (IEP) وخطط الفقرة 504 الخاصة بهم استخدام وسائل المساعدة التقنية، مثل وحدة موجات التردد (FM)، أو وسائل المساعدة الأخرى، مثل الأقنعة وأقلام وضع العلامات أو أقلام التظليل، يجب عليهم إحضار هذه الأشياء معهم في يوم اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) و/أو تجربة الأداء. الرجاء ملاحظة ما يلي: لن يتم توفير وسائل المساعدة التقنية ووسائل المساعدة الأخرى في مواقع و/أو أيام الاختبار و/أو تجارب الأداء.

لا يسمح بتقديم تسهيلات الاختبارات لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)

لا يسمح بتقديم تسهيلات معينة لأي تلميذ في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، حيث أن تقديم هذه التسهيلات قد تؤثر على تقييم الاختبار لمهارات معينة.

■ لا يسمح للتلاميذ باستخدام الآلات الحاسبة و/أو الجداول الحسابية في قسم الرياضيات، لأن هذا القسم من اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) يقيس مهارات التلميذ الحسابية.

■ لن يتم قراءة أي جزء من قسم القراءة من اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) بصوت عالٍ لأي تلميذ، لأن هذا القسم من الاختبار يقيس مهارة استيعاب القراءة عند التلميذ. ويتضمن هذا التوجيهات، والنصوص، والأسئلة، والأجوبة.

■ لا يسمح بالترجمة الشفوية لتعليمات الاختبار، والأسئلة، والأجوبة لأن الترجمة تغير معيارية الاختبار. يسمح للتلاميذ متعلمي اللغة الإنكليزية الذين يحتاجون للترجمة باستخدام المسارد الرياضية مزدوجة اللغة في قسم الرياضيات من اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) فقط.

تسهيلات الاختبار غير اللازمة لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)

بالإضافة لذلك، فإن بعض التسهيلات التي قد يستفيد منها التلاميذ في الاختبارات الأخرى قد تكون غير لازمة في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT). على سبيل المثال، التلاميذ الذين يستخدمون الكمبيوتر، أو معالج الكلمات في الاختبارات التي تتضمن مقالات لن يحتاجوا لاستخدام هذه التسهيلات في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) حيث أنه لا توجد مقالات في هذا الاختبار.

ملاحظة عن مساعد الكتابة: إذا كان لدى التلميذ مساعد كتابة تم إدراجه في برنامج التعليم الفردي أو خطة 504، فمن المهم التنويه ما إذا كان التلميذ يحتاج إلى مساعدة في تظليل ورقة الإجابة أم لا. لا يتطلب وجود مساعد كتابة إذا كان التلميذ يستطيع

التسهيلات الاختبارية هي تغييرات في صيغة الاختبار و/أو طريقة تقديم الاختبار بحيث يحصل التلاميذ المؤهلون على الدعم الذي يحتاجونه ليظهروا قدراتهم، ومعارفهم، وإمكانياتهم من دون أن تؤثر إعاقتهم أو كفاءتهم باللغة الإنكليزية عليهم من دون داع. نشجع العائلات على مراجعة مصادر التابعة لإدارة التعليم لمدينة نيويورك (NYCDOE) حول التسهيلات الاختبارية للحصول على معلومات إضافية. <http://schools.nyc.gov/Academics/SpecialEducation/Classroom/instruction/accommodations.htm>

ملاحظات هامة:

■ يتم توفير تسهيلات الاختبار بناءً على تسهيلات اختبار التلميذ الحالية. وهذا موثق في برامج التعليم الفردية (IEP) أو خطط 504 للتلميذ أو بناءً على حالة التلميذ متعلمي اللغة الإنكليزية.

■ ولا يسمح بالتسهيلات التي تطلب لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) و/أو تجارب أداء مدرسة LaGuardia High School فقط. يجب على التلاميذ إثبات سجل موثق لاحتياجاتهم واستخدامهم لتسهيلات الاختبار.

■ يتعين على التلاميذ ذوي خطط 504 اعتماد تسهيلاتهم كل عام. على المدارس والعائلات مراجعة خطة 504 للعام الدراسي 2016-2017 للتلميذ في موعد أقصاه آخر يوم في الدراسة في يونيو 2016 (واعتقادها إن أمكن ذلك). يُرجى الاطلاع على الأسئلة الشائعة بشأن خطط 504 على الرابط: <http://schools.nyc.gov/Offices/Health/SchoolHealthForms>

■ قد يحصل التلاميذ الذين يثبتون إعاقتهم أو الإعاقات المؤقتة في غضون 30 يوماً من موعد اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) على تسهيلات اختبار طارئة محددة، إذا تمت الموافقة عليها من قبل المدير. يُرجى مراجعة قسم "تسهيلات الاختبار و/أو تجارب الأداء في الحالات الطارئة" في صفحة 17 للحصول على مزيد من المعلومات.

تسهيلات الاختبارات لاختبار القبول بالمدارس الثانوية المتخصصة SHSAT

سوف يتم تزويد التلاميذ من ذوي الإعاقة بالتسهيلات المدرجة في برامج التعليم الفردية (IEP) الخاصة بهم أو في خطط 504، ما لم تكن هذه التسهيلات غير مسموح بها في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، أو إذا كانت التسهيلات غير ضرورية في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) (انظر القسم التالي). يتعين على التلاميذ والعائلات الاتصال بشكل مباشر بالموجهين الإرشاديين الخاصين بهم في مدرستهم الراهنه لطرح الأسئلة المتعلقة بتسهيلات اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) والتأكد من صحة تسهيلات الاختبار في بطاقات الاختبار.

نظراً للوقت اللازم لانتقال التلميذ من مبنى الدخول إلى قاعات الاختبار، سيتم حساب الوقت الممتد في الاختبار بدايةً من وقت بدء الاختبار وليس وقت الوصول الوارد في البطاقة.

يتم منح التلاميذ متعلمي اللغة الإنكليزية والتلاميذ السابقين المؤهلين من متعلمي اللغة الإنكليزية الذين يخوضون اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) وقتاً مطوّلاً قدره 225 دقيقة (بما يعادل وقت الاختبار القياسي مرة ونصف) وموقفاً منفصلاً. كما سيتم أيضاً تقديم المسارد اللغوية مزدوجة اللغة في الرياضيات من قبل ادارة التعليم لمدينة نيويورك (NYCDOE) في يوم اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)

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التعليم لمدينة نيويورك (NYCDOE) وتقديمها مع الوثائق الداعمة إلى إدارة التعليم لمدينة نيويورك (NYCDOE) للمراجعة والموافقة قبل الموعد النهائي لتقديم طلب إجراء الاختبار (RFT). يمكن لمدارس التلاميذ الحالية تقديم الاستمارة وتحمل المدرسة مسؤولية التأكد من القيام بعملية المراجعة المناسبة، وتقديم طلبات التسهيلات للتلاميذ والوثائق المتعلقة بها قبل الموعد النهائي لطلب إجراء الاختبار (RFT). وتحفظ ادارة التعليم لمدينة نيويورك (NYCDOE) بحق طلب معلومات إضافية عن اجراءات المدارس لمنح التسهيلات والتحقق من أن التسهيلات المطلوبة تلبى احتياجاً مؤثراً. يتعين على تلاميذ المدارس غير العامة الذين يودون تجربة أداء في مدرسة LaGuardia High School اعتماد خطط التسهيلات من خلال الدعم الموجود في المدرسة أو فرق برامج التعليم الفردية (IEP) ويجب إرسال الوثائق إلى مدرسة LaGuardia High School مباشرة حتى يتسنى الترتيب لتسهيلات تجارب الأداء.

الاستبعاد من تسهيلات الاختبار

يمكن للآباء أو أولياء الأمور للتلاميذ متعلمي اللغة الإنكليزية أو التلاميذ الذين لديهم برامج تعليم فردية (IEP) أو خطط الفقرة 504 الانسحاب من تسهيلات اختبارية محددة لأطفالهم في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) أو تجارب الأداء لمدرسة لاغوارديا (LaGuardia High School) قبل الموعد النهائي لطلب إجراء الاختبار (RFT). ويجب على الآباء أو أولياء الأمور الاتصال بالموجّه الإرشادي لطفلم قبل الموعد النهائي لطلب إجراء الاختبار (RFT) للتتوية كتابياً برغبته بالانسحاب من التسهيلات الاختبارية لطفلم. لا يمكن للموجهين الإرشاديين ولا للتلاميذ الانسحاب من تسهيلات الاختبار؛ ويطلب وجود موافقة كتابية مقدّمة من الوالد(ة)/ولي(ة) الأمر.

إذا لم يكن من الممكن تقديم موافقة كتابية للانسحاب من تسهيلات الاختبار قبل الموعد النهائي لطلب إجراء الاختبار (RFT)، يجب على الآباء/ أولياء الأمور تقديم موافقة كتابية في يوم الاختبار للانسحاب من تسهيلات الاختبار يتم إرجاعها في البطاقة الاختبارية أو بطاقة تجربة الأداء الخاصة بطفلم.

لا يمكن للتلاميذ تعديل تسهيلات الاختبار الخاصة بهم الواردة في بطاقة الاختبار أو تجربة الأداء، أو التخلي عنها، يوم الاختبار إلا في حالة تقديم موافقة كتابية من الوالد/ولي الأمر مدرجة على بطاقة الاختبار أو تجربة الأداء.

التلاميذ الحاصلون على مهلة زمنية إضافية ممن ينفون الاختبار قبل انقضاء المهلة الزمنية الإضافية

■ يتعين على جميع التلاميذ البقاء في قاعات الاختبار حتى انتهاء وقت الاختبار القياسي (150 دقيقة) على الأقل، فيما عدا استراحات الخروج لاستخدام الحمام.

■ وحالما انقضى وقت الاختبار القياسي (150 دقيقة)، يسمح للتلاميذ الحاصلين على تسهيلات الوقت المطول للاختبار بالمغادرة في حال انتهوا من الإجابة على الاختبار.

■ سيطلب من التلاميذ الذين يغادرون قاعة الاختبار قبل انقضاء وقتهم المطول تقديم إقرار خطي بأنهم كانت لديهم الفرصة لاستخدام كامل وقتهم المطول غير أنهم اختاروا المغادرة باكراً.

■ إذا كان الوالد/ولي الأمر يرفض مغادرة الطفل لقاعة الاختبار قبل انقضاء كامل الوقت المطول، فمن مسؤوليته إبلاغ طفلم بذلك قبل بدء الاختبار.

التظليل في إجابات التلميذ في ورقة الإجابة بصورة مستقلة. لا يتطلب وجود مساعد كتابة إلا في حالة عدم استطاعة التلميذ كتابة أعمال التلميذ على مسودة ورق والتظليل في أوراق إجابة التلميذ. التلاميذ الذين يستخدمون مساعد كتابة في يوم الاختبار سيخضعون لإدارة الاختبار 1:1. لذا، من المهم للعائلات العمل مع فريق برنامج التعليم الفردي أو خطة 504 للتأكد من أن تلك التسهيلات تم إدراجها بصورة صحيحة في برنامج التعليم الفردي أو خطة 504.

تسهيلات الاختبار لتجارب الأداء بمدرسة LAGUARDIA HIGH SCHOOL

عند وجود أي أسئلة متعلقة بما إذا كانت التسهيلات مسموح بها في تجارب الأداء، يُرجى الطلب من الموجه الإرشادي الخاص بكم الاتصال بمدرسة LaGuardia High School مباشرة على رقم الهاتف 212-496-0700 أو إرسال بريد إلكتروني عبر admissions@laguardiahs.org. للمعلومات حول الأعداد للتسهيلات لتجارب الأداء بمدرسة (LaGuardia High School)، الرجاء مراجعة القسم التالي.

تأكيد التسهيلات لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) وتجارب الأداء لثانوية لاغوارديا (LAGUARDIA) (HIGH SCHOOL)

■ أثناء فترة طلبات إجراء الاختبار (RFT) لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، تتحمل مدرسة التلميذ الحالية، بما في ذلك المدارس غير العامة (المدارس الخاصة أو الأبرشية)، مسؤولية إدخال تسهيلات الاختبار المناسبة في نظام إدارة تسجيل التلاميذ (SEMS) لإدارة التعليم لمدينة نيويورك (NYCDOE). بالنسبة للتلاميذ الذين لديهم خطط 504 أو خطط تسهيلات مشابهة ضمن المدرسة فقط للتلاميذ من غير مدارس إدارة التعليم لمدينة نيويورك (NYCDOE)، يجب تقديم جميع الوثائق إلى إدارة التعليم لمدينة نيويورك، للمراجعة، عبر البريد الإلكتروني إلى العنوان SHSATaccommodations@schools.nyc.gov في موعد أقصاه ثلاثة (3) أسابيع قبل الموعد النهائي لطلب إجراء الاختبار (RFT). ولن يتم مراجعة الوثائق التي تُرسل بعد هذا الموعد النهائي في موعد اختبار التلميذ المحدد. يتعين على التلاميذ والعائلات الاتصال بشكل مباشر بالموجهين الإرشاديين الخاصين بهم في مدرستهم الراهنة لطرح الأسئلة المتعلقة بتسهيلات اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT).

■ يجب على التلاميذ الذين يرغبون في الحصول على تسهيلات تجارب الأداء بمدرسة LaGuardia High School الطلب من الموجه الإرشادي الخاص بهم إرسال الوثائق الداعمة إلى مدرسة LaGuardia High School مباشرة قبل الموعد النهائي لطلب إجراء الاختبار (RFT) (مثلاً، برنامج التعليم الفردي (IEP) للتلميذ، أو خطة الفقرة 504، أو خطاب موفّع على رأسية تفاصيل المدرسة يصف مساعدات متعلمي اللغة الإنكليزية التي حصل عليها التلميذ في بيئة مدرسية). يمكن إرسال الوثائق إلى مدرسة LaGuardia High School عبر الفاكس على الرقم 212-724-5748 أو إرسالها عبر البريد الإلكتروني إلى admissions@laguardiahs.org. يتعين على الموجهين الإرشاديين الاتصال بمدرسة (LaGuardia High School) مباشرة بخصوص أية أسئلة حول تسهيلات تجارب الأداء.

■ يجب على التلاميذ من ذوي الإعاقة في المدارس غير العامة، الذين ليس لديهم برامج تعليم فردية (IEP) أو خطط الفقرة 504 تنصّ على حاجتهم لتسهيلات الاختبار، التعاون مع الموجه الإرشادي بمدرستهم لإكمال استمارة طلب تسهيلات الاختبار الخاصة بإدارة

خطوات عملية تقديم الطلبات تابع... تسهيلات الاختبار وتجارب الأداء

■ لن يتم السماح بإعادة الاختبار للتلاميذ الذين اختاروا مغادرة القاعة قبل انقضاء وقتهم المطول.

الاختبار في الحالات الطارئة و/ أو تسهيلات تجارب الأداء

إنّ تسهيلات الاختبار في الحالات الطارئة مصمّمة حتى يستخدمها التلاميذ ممن تحدث إعاقاتهم أو إصاباتهم بعد الموعد النهائي لطلب إجراء الاختبار (RFT) وقبل اليوم المحدّد لإجراء الاختبار/تجربة الأداء، من دون أن يكون هناك وقت كاف لإعداد برنامج التعليم الفردي (IEP) أو خطة 504. بالنسبة لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، يتعين على التلاميذ والعائلات العمل مع موجههم الإرشادي لإكمال طلب الاختبار في الحالات الطارئة وطلب إرسال رسالة عبر البريد الإلكتروني على SHSATaccommodations@schools.nyc.gov بأسرع وقتٍ ممكن قبل يوم الاختبار عندما تكون هناك حاجة للتسهيلات المتعلقة بالحالات الطارئة.

إذا طلبت عائلة ما التسهيلات من دون اتاحة الوقت الكافي لإدارة التعليم لمدينة نيويورك (NYCDOE) لمراجعة الطلب قبل الموعد النظامي لتقديم اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، فقد يتم إعادة تحديد موعد اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) للتأكد من أن مراجعة طلب التسهيلات بشكل جيد.

إذا طلب تلميذ(ة) تسهيلات الحالات الطارئة لتجربة الأداء لمدرسة (LaGuardia High School)، فيجب على العائلة أو الموجه الإرشادي الاتصال بمدرسة (LaGuardia High School) مباشرة لطلب التسهيلات.

يجب أن يتصل التلاميذ والعائلات بالموجه الإرشادي الخاص بهم للمزيد من المعلومات حول تسهيلات الاختبار.

سهولة الوصول للمبنى

تلتزم إدارة التعليم لمدينة نيويورك (NYCDOE) بضمان بأن برامجها وخدماتها وأنشطتها يسهل على طاقم العمل وأعضاء مجتمع المدرسة والتلاميذ وأفراد العائلة من ذوي الإعاقة الوصول إليها. وتقوم إدارة التعليم لمدينة نيويورك (NYCDOE) بتقييم جميع المباني بصورة مستمرة لتحديد المدارس التي يسهل على الأفراد من ذوي الإعاقة الوصول إليها. وللحصول على أحدث المعلومات حول سهولة الوصول إلى كل مدرسة، يُرجى الاتصال بالمدرسة مباشرة. ويتم تشجيع العائلات على زيارة المدارس لمعرفة مستوى إمكانية الوصول إليها. لمزيد من المعلومات، يُرجى زيارة: <http://schools.nyc.gov/Offices/OSP/Accessibility>.

ورقة مسودة يمكن استعمالها في حل الاستدلال المنطقي والمسائل الرياضية، وسيتم أخذها من التلميذ عند نهاية الاختبار.

إجراءات اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)

تنبيه للتلاميذ، من المهم مراجعة التعليمات الواردة أدناه مع آباءكم/ أو ولي(ة) أمركم للتأكد من الاستيعاب قبل الاختبار.

الوصول إلى موقع الاختبار

■ من المهم الوصول إلى موقع الاختبار في الوقت المشار إليه في بطاقة اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) الخاصة بك. والرجاء الانتباه إلى أن الاختبار قد لا يبدأ مباشرة بعد وقت الوصول المذكور. سيقدم موقع الاختبار معلومات عن أوقات استكمال الاختبار المتوقعة. يمكنك إحضار وجبات خفيفة وماء، ولكن موقع الاختبار سيحدد الوقت المناسب لتناولها. وسوف يقوم المراقب بجمع جميع الهواتف الخلوية والأجهزة الإلكترونية ووضعها في غرفة الاختبار قبل بدء الاختبار ثم يتم إعادتها عند انتهاء الاختبار. لا يسمح لك باستخدام الهاتف المحمول إلى ما بعد انتهاء الاختبار وخروجك من البناء.

■ سوف يطلب منك قبل بدء الاختبار، قراءة بيان في ورقة إجاباتك والتوقيع عليه، وهو بيان يشير إلى أنك مقيم في مدينة نيويورك، وأنت تتمتع بصحة جيدة تؤهلك لخوض الاختبار، وأنت تؤديه بالمستوى الصفي المناسب. التلاميذ الذين يوقعون على هذا البيان وهم غير مؤهلين لتلك المتطلبات سيتم إلغاء تأهلهم للقبول بأي من المدارس الثانوية المتخصصة.

■ وإذا كنت تشعر بأنك لست بصحة جيدة وليس لديك خطة 504 طبية معتمدة، يتعين عليك إخطار مراقب الاختبار فوراً؛ وعدم البدء في الاختبار، أو التوقيع على البيان. وبمجرد أن تبدأ بالاختبار، لن يكون بإمكانك طلب اختبار تعويضي بسبب المرض. قد لا يتم النظر في أي طلب للاختبار التعويضي يتم تقديمه بعد مباشرتك للاختبار.

■ قبل بدء الاختبار، سيقيم طاقم عمل إدارة التعليم لمدينة نيويورك (NYCDOE) بالتقاط صورة فوتوغرافية أو مقطع فيديو للتلاميذ في كل قاعة اختبار. وسوف يتم استخدام هذه الصور للأغراض الأمنية للاختبار فقط.

لا تحضر معك كاميرا أو أجهزة إلكترونية شخصية مثل ساعة مزودة بآلة حاسبة، أو ساعة ذكية أو آلة حاسبة، أو مشغل MP3/جهاز iPod، أو كمبيوتر لوحي/iPad، أو قارئ الكتب الإلكتروني إلى موقع الاختبار.

وكما هو الحال وفقاً لسياسة الاختبار لإدارة التعليم لمدينة نيويورك (NYCDOE)، فسوف يتم جمع الهواتف المحمولة والأجهزة الإلكترونية الممنوعة من جميع التلاميذ الداخلين إلى القاعة التي يتم فيها تقديم الاختبار وسوف تتم إعادتها للتلاميذ بعد انتهاءهم من الاختبار ومغادرتهم للقاعة. لا يسمح للتلاميذ باستخدام أي أجهزة أثناء الاختبار، بما في ذلك فترات الاستراحة.

وسوف تقوم المدارس أثناء فترة الاختبار بتحديد مكان لجمع الأجهزة بعد دخول التلاميذ لغرفة الصف وقبل تقديم الاختبار. سوف يتم إصدار تعليمات للتلاميذ بوضع الهواتف المحمولة/الكاميرات/الأجهزة الإلكترونية في حقيبة الظهر الخاصة بهم أو في حاوية يتم تقديمها من قبل المدرسة، ووضعها أمام غرفة الصف حتى انتهاء تقديم الاختبار. سوف يتم رفض الإدخال إلى الاختبار لكل تلميذ(ة) يرفض تسليم جهاز غير مسموح به. سوف تؤدي حيازة جهاز ممنوع حتى لو كان مطلقاً في أي وقت من فترة الاختبار، إلى الغائته. لن يتم إعطاء التلاميذ الفرصة لتعويض الاختبار في يوم لاحق.

يقوم اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) بتقييم المعرفة والمهارات. تتضمن هذا المهارات القدرة على فهم النثر باللغة الانكليزية، والتفكير في المسائل اللفظية للوصول إلى نتيجة منطقية مبنية على المعلومات المتوفرة، والقدرة على استخدام مهارات حل المسائل في الرياضيات. ويقيس هذا الاختبار المعرفة والمهارات التي اكتسبها التلاميذ على مدار فترتهم التعليمية. إن أفضل أسلوب ممكن للتحضير لهذا الاختبار هو المثابرة على أداء الأعمال المدرسية على مدار العام الدراسي.

يتكون اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) من قسمين، القسم اللفظي وقسم الرياضيات. ويبلغ زمن تطبيق الاختبار القياسي 150 دقيقة لاستكمال الاختبار.

القسم الشفوي (45 سؤالاً)

ويتألف القسم اللفظي من مكوني الاستدلال اللفظي وفهم القراءة. يتم قياس الاستدلال اللفظي من خلال خمسة عناصر من فقرة تم ترتيبها بشكل عشوائي، ويطلب من التلاميذ وضع الجمل وفق الترتيب الصحيح لصياغة فقرة، بالإضافة إلى 10 أسئلة متعلقة بالتعليل المنطقي. ويطلب قسم استيعاب القراءة من التلاميذ قراءة خمس اختبارات قراءة، يلي كلاً منها ست أسئلة تقيس قدرة التلميذ(ة) على فهم، وتحليل، وتفسير ما قرأه.

قسم الرياضيات (50 سؤالاً)

يتكون قسم الرياضيات من مسائل كلامية وأسئلة حسابية.

يمكن للتلاميذ اختبار إكمال أي من القسم اللفظي أو قسم الرياضيات أولاً. ويمكن للتلاميذ الذين ينتهون قبل انقضاء الوقت الرجوع إلى الأسئلة في أي من القسمين لمراجعة إجاباتهم.

ولن يتم منح التلاميذ وقتاً إضافياً في نهاية الاختبار لنقل الإجابات من كتيب الاختبار إلى ورقة الإجابة. ويجب تسجيل جميع الإجابات في ورقة الإجابة قبل نهاية الاختبار.

مواد الاختبار

يجب أن يحضر التلاميذ ما يلي إلى جلسة الاختبار:

- بطاقة الدخول لاختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) موقعة من الوالد/ولي الأمر مع اختيارات التلميذ من المدارس الثانوية المتخصصة
- أقلام رصاص مبرية رقم 2 (أقلام الحبر والحبر الجاف لا يمكن استخدامها في التصحيح الآلي للاختبار)
- ممحاة
- التقنية المساعدة (في حالة الإشارة إليها في برنامج التعليم الفردي (IEP) وبطاقة الاختبار)
- ساعة صامتة لا يوجد فيها آلة حاسبة لمناوبة وقت إجاباتك

وسوف يقوم موقع الاختبار بتقديم:

- كتيب اختبار مع ورقة إجابة وورقة لاستخدامها كمسودة
- أوراق إضافية اختيارية للاستخدام كمسودة

إكمال ورقة الإجابة

سوف تكون أوراق الإجابات مرفقة مع كتيب الاختبار. عندما يطلب منك المراقب القيام بذلك، يجب عليك فصل ورقة الإجابة، وورقة للاستخدام كمسودة من كتيب الاختبار عند الخط المتقوب، والحرص على عدم إتلاف ورقة الإجابة أو خاتم كتيب الاختبار.

يتعين عليك إعطاء معلومات مثل اسمك، ورقم هوية التلميذ، ورقم المدرسة، واختيارات المدارس على ورقة إجاباتك، قبل خوض الاختبار.

من المهم تظليل الدوائر بالكامل، لكي لا يحصل تأخير في عملية تقدير الدرجات. تجمع الجداول التالية من ورقة الإجابة معلومات هامة محددة بالإضافة إلى معلومات تؤثر على قرار الإلحاق بالمدارس الثانوية المتخصصة.

في الجدول رقم 4 يتعين عليك تظليل حروف اسمك كما يظهر في سجلاتك المدرسية وفي طلبك للالتحاق بالمدارس الثانوية. لا يجوز لك استخدام اللقب. مثلاً، إذا كان اسمك في سجلات المدرسة "روبرت/Robert"، يجب أن تظلل حروف هذا الاسم في الدوائر، حتى وإن كان أغلب الناس ينادونك بـ "روبي/Robbie". أو إذا كان اسمك في سجلات المدرسة "ماري-لينغ/Mei-Ling"، يجب أن تظلل هذا الاسم في الدائرة، حتى وإن كان أغلب الناس ينادونك "ميلاني/Melanie".

الجدول رقم 5 مخصص فقط لاختبارك للمدارس الثانوية المتخصصة. إذا قمت بتعليم الجدول 5 بشكل خاطئ، فقد يؤثر ذلك على إلحاقك بالمدرسة الثانوية المتخصصة. يقوم الإلحاق على درجتك والترتيب الذي أدرجت به تفضيلاتك للمدارس في الجدول رقم 5، بالإضافة إلى عدد المقاعد المتوفرة في كل مدرسة. لذلك فمن المهم جداً أن تحدد قراراتك بخصوص ترتيب المدارس قبل يوم الاختبار. ناقش مع عائلتك المدارس التي ترغب بالإلحاق بها، وحدد الترتيب الذي ستتبعه لتحديد أولويات المدارس في ورقة الإجابة. أدخل هذه الترتيبات في بطاقة الاختبار لكي يتسنى لك نسخها بعناية في الجدول رقم 5 في ورقة إجاباتك بموقع الاختبار. سيتم فقط احتساب الاختيارات المدرجة في الجدول رقم 5.

أمثلة على الجدول رقم 5 الصحيح

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.
• Fill in only one school for each choice.
• You **must** fill in a first choice school.
• Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

SCHOOLS	CHOICES							
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>				
Brooklyn Tech	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>				
Queens Sci./York	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stuyvesant	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
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• Fill in only one school for each choice.
• You **must** fill in a first choice school.
• Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

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	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>					
Staten Island Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stuyvesant	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

يجب عليك تعبئة الخيار الأول للمدارس.

أمثلة على الجدول رقم 5 غير الصحيح

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.
• Fill in only one school for each choice.
• You **must** fill in a first choice school.
• Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

SCHOOLS	CHOICES							
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS Math, Sci., & Engineering	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>				
Stuyvesant	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

لا تقم بتظليل أكثر من دائرة واحدة في العمود.

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.
• Fill in only one school for each choice.
• You **must** fill in a first choice school.
• Fill in only one circle in a row and only one circle in a column.

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	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Latin	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Brooklyn Tech	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>				
HS Math, Sci., & Engineering	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
HS American Studies/Lehman	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Queens Sci./York	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Staten Island Tech	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stuyvesant	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

لا تقم بتظليل أكثر من دائرة واحدة في الصف.

5. CHOICES OF SPECIALIZED HIGH SCHOOLS
Indicate your school choice in order of preference.
• Fill in only one school for each choice.
• You **must** fill in a first choice school.
• Fill in only one circle in a row and only one circle in a column.

School choices indicated on the answer sheet are final.

SCHOOLS	CHOICES							
	1st choice	2nd choice	3rd choice	4th choice	5th choice	6th choice	7th choice	8th choice
Bronx Science	<input type="radio"/>							
Brooklyn Latin	<input type="radio"/>							
Brooklyn Tech	<input type="radio"/>							
HS Math, Sci., & Engineering	<input type="radio"/>							
HS American Studies/Lehman	<input type="radio"/>							
Queens Sci./York	<input type="radio"/>							
Staten Island Tech	<input checked="" type="radio"/>							
Stuyvesant	<input type="radio"/>							

لا تحدد المدرسة نفسها في كل خيار.

الجدول رقم 7

7. SCHOOL WHERE YOU ARE NOW ENROLLED

Abraham Lincoln IS 171
NAME OF SCHOOL

School Code

1	9	K	1	7	1
0	0	K	0	0	0
1	1	M	1	1	1
2	2	Q	2	2	2
3	3	X	3	3	3
4	4	R	4	4	4
5	5	W	5	5	5
6	6		6	6	6
7	7		7	7	7
8	8		8	8	8
9	9		9	9	9

P Fill in for private or parochial schools only

يجب عليك تظليل دائرة واحدة، لا أكثر، لكل مدرسة ترغب في أن يُنظر في طلبك للاتحاق بها. يمكنك وضع اختيار واحد أو ما يصل إلى ثماني اختيارات. ولزيادة فرصك بالحصول على عرض في واحدة من هذه المدارس الثانوية المتخصصة، فإننا نشجعك على جعل الاختيارات أكثر من واحد. يجب عليك تظليل اختيارك الأول من المدارس، ويمكنك تظليل مدرسة واحدة فقط لكل خيار. يجب عليك تظليل دائرة واحدة في كل صف فقط دائرة واحدة في كل عمود. يجب عليك عدم تظليل مدرسة ما أكثر من مرة. يجب عليك عدم تظليل المدرسة نفسها في كل الاختيارات.

في الجدول رقم 7، يجب عليك كتابة اسم المدرسة المسجل فيها أنت حالياً. ثم عليك كتابة رمز المدرسة تماماً كما يظهر في بطاقة دخول الاختبار أو في قائمة المدارس الموجودة مع مراقب الاختبار. ثم بعد ذلك، قم بتظليل الأرقام أو الحروف الموافقة لكل رقم من رمز مدرستك. قم بتظليل الحرف "P" إذا كنت تداوم في مدرسة خاصة أو أبرشية. على سبيل المثال، يجب على التلميذ الذي يداوم بمدرسة (Abraham Lincoln IS 171) في بروكلين إكمال الجدول رقم 7 كما هو موضح في المثال على اليمين. املا الجدول 7 بدقة: حيث أن أي خطأ في تظليل الدوائر بالجدول رقم 7 قد يؤخر صدور علامتك.

الجدول رقم 8 يحمل عنوان "STUDENT ID NUMBER" (رقم هوية التلميذ). أكتب رقم تعريف التلميذ الخاص بك والمكون من تسع خانات في الجدول 8. وستجد هذا الرقم في بطاقة اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT). تحت كل مربع، ظلل الدائرة التي تحتوي على نفس أرقام المربع. (راجع المثال على اليمين).

الجدول رقم 8

8. STUDENT ID NUMBER

3	2	1	-	4	5	6	-	7	7	8
0	0	0		0	0	0		0	0	0
1	1	●		1	1	1		1	1	1
2	●	2		2	2	2		2	2	2
●	3	3		3	3	3		3	3	3
4	4	4		●	4	4		4	4	4
5	5	5		5	●	5		5	5	5
6	6	6		6	6	●		6	6	6
7	7	7		7	7	7		●	●	7
8	8	8		8	8	8		8	8	●
9	9	9		9	9	9		9	9	9

SAMPLE ANSWER MARKS

- | | | | | | | |
|---|-----|-----|-----|-----|-----|-------|
| 1 | (A) | (B) | (C) | (D) | ● | RIGHT |
| 2 | (A) | (B) | (C) | (D) | (E) | WRONG |
| 3 | (A) | (B) | (C) | (D) | (E) | WRONG |
| 4 | (A) | (B) | (C) | (D) | (E) | WRONG |
| 5 | (A) | (B) | ● | ● | (E) | WRONG |

عندما يُقال لك ابدأ الاختبار، علم على إجاباتك على ورقة الإجابة بتظليل الدائرة المناسبة بالكامل (راجع المثال). تأكد من أن تكون علامتك داكنة وكثيفة. انتبه لنلا تضع علامات خاطئة على ورقة الإجابة. إذا غيرت إجابة ما، امح إجابتك السابقة بالكامل. لا تطوي أو تمزق ورقة الإجابة. هناك جواب واحد فقط صحيح لكل سؤال. إذا أظهرت ورقة إجاباتك أكثر من علامة واحدة رداً على سؤال ما، فسيتم اعتبار هذا الجواب غير صحيح.

يمكنك الكتابة في كتيب إجاباتك أو على ورقة المسودة المتوفرة لك لحل المسائل الشفهية أو الرياضية، لكن يجب تسجيل إجاباتك على ورقة الإجابة حتى يتم احتسابها. لن تتمكن من العودة والتعليم على الإجابات في ورقة الإجابة بعد انتهاء وقت الاختبار. لن يتم احتساب الإجابات المتروكة في كتيب الاختبار أو ورقة المسودة.

سوء سلوك التلميذ (ة)

ولعمل مقارنات صحيحة بين النتائج، يجب تحويل النتيجة الخام إلى نوع آخر من النتائج يأخذ في الاعتبار الفروق بين أشكال الاختبار. وفي عملية تسمى معايرة، يتم تحويل النتائج الخام للقسم الشفهي وقسم الرياضيات إلى نتائج مدرجة. هذا ولا تكون النتائج الخام والنتائج المدرجة متناسبة. ففي وسط نطاق النتائج، قد تشير الزيادة بنقطة واحدة في النتيجة الخام إلى زيادة ثلاثة نقاط أو أربع في النتيجة المدرجة. وفي المستوى الأعلى أو الأسفل من نطاق النتائج، قد تشير الزيادة بنقطة واحدة في النتيجة الخام إلى زيادة في 10-20 نقطة في النتيجة المدرجة. سبب هذا الاختلاف هو أن النتائج المدرجة قد تم تعديلها لتلائم المنحنى العادي. والنتائج المدرجة موجودة على سلم معتمد في جميع أشكال الاختبار، مما يجعل من الممكن مقارنة هذه النتائج بصورة مباشرة. والنتيجة المركبة هي حاصل جمع النتائج المدرجة للقسامين الشفهي والرياضيات. تُستعمل النتيجة المركبة لتحديد القبول في مدرسة ثانوية متخصصة.

من المهم إدراك أن الأمن في غاية الأهمية في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT). ولا يجوز لك أثناء الاختبار محاولة التواصل مع التلاميذ الآخرين بأي شكل من الأشكال. ويشمل ذلك على سبيل المثال وليس الحصر: المحادثة، أو كتابة الملاحظات وتمريضها، أو مشاركة كتيبات الاختبار أو أوراق الإجابة، أو النظر إلى إجابات التلاميذ الآخرين، أو تسجيل عناصر الاختبار، أو حيازة كاميرا أو أي جهاز إلكتروني شخصي. وسوف يتم إلغاء اختبار التلاميذ الذين يُكتشف أنهم انخرطوا في أي من هذه التصرفات، ولن يسمح لهم بخوض الاختبار مرة أخرى حتى العام الدراسي التالي (بالنسبة لتلاميذ الصف 8 الحاليين، ولن يعطى تلميذ الصف 9 أي فرص إضافية لخوض الاختبار بعد الصف التاسع).

الإدعاءات بحدوث مخالفات أثناء الاختبار

إجراء المراجعة

بعد استلام النتائج، يمكنك أنت والدك (والدتك) أو ولي (ة) أمرك مراجعة نسخة من ورقة إجاباتك من خلال طلب موعد مع ممثل لجنة التقييم. لا يوجد نسخ من ورقات الإجابة للتوزيع غير أنه يتم مراجعتها في الموعد المحدد. يمكن الترتيب للموعد بإحدى الطريقتين التاليتين:

إذا كنت تعتقد أن هناك تشويش أو مخالفات اختيارية أثناء أي قسم من أقسام اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)، فعليك لفت انتباه مراقب الاختبارات فوراً. قد يشمل ذلك عدم طباعة خاطئة في ورق الاختبار، أو تشويش لا داعي له، أو سلوك غير ملائم من تلميذ (ة) ما. وسوف يحاول مراقب الاختبار تصحيح الموقف وأخذ بيان مكتوب منك في نهاية الاختبار.

1) من خلال إرسال طلب إلكتروني عن طريق موقع الويب الخاص باختبار القبول بالمدارس الثانوية المتخصصة www.nyc.gov/schools/SHSAT، أو Accountability/resources/testing/SHSAT

يمكن أيضاً للتلاميذ والآباء/أولياء الأمور الإبلاغ بأية شكوك حول مخالفات متعلقة بمراقبة الاختبار أو الاختبار، بصيغة خطاب، يتم توجيهه إلى العنوان التالي:

Office of Student Enrollment
52 Chambers Street, Room 415
New York, NY 10007

2) من خلال إرسال طلب كتابي بالبريد المسجل مع إثبات التسليم إلى:

Office of Assessment, SHSAT Review
52 Chambers Street, Room 309
New York, New York 10007

يجب إرسال الخطاب بالبريد المسجل مع إثبات التسليم، وعليه ختم بريدي بتاريخ لا يتجاوز أسبوع واحد بعد تاريخ تقديم الاختبار. بالنسبة لكافة الإدعاءات، الرجاء ذكر اسم الوالد(ة)/ولي(ة) الأمر وأسماء التلاميذ، بالإضافة إلى معلومات الاتصال مثل رقم الهاتف و/أو البريد الإلكتروني. لن يتم النظر في أية ادعاءات حول المخالفات الاختبارية تحمل ختماً بريدياً يتعدى مدة أسبوع واحد من تاريخ الاختبار. سوف يتم الرد على الشكاوى على أساس فردي.

يجب إرسال الطلبات الإلكترونية، وختم الخطابات بختم البريد، في موعد أقصاه الأول من أبريل/نيسان، 2016. يجب أن يتضمن الطلب:

- اسم التلميذ، وتاريخ ميلاده، ورقم التعريف المدرسي (OSIS)
- اسم الوالد/ولي الأمر، ورقم هاتفه وعنوان بريده الإلكتروني

تقدير درجات اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT)

وسوف يقوم مكتب التقييمات (Office of Assessment) بتقديم تفاصيل المخطط الزمني في غضون أربعة أسابيع من تاريخ استلام الطلب. ويجب على التلميذ وواحد على الأقل من الآباء/أولياء الأمور التواجد بالمقابلة. ولن يتم السماح سوى للتلميذ وحتى شخصين من الآباء/أولياء الأمور بحضور المقابلة. وفي حال وجود أيام أو أوقات أثناء ساعات العمل الطبيعية خلال الأشهر من شهر أبريل/نيسان حتى يونيو/حزيران لا تناسب التلميذ والوالد/ولي الأمر، فلا تنسى الإشارة إلى هذه الأيام والأوقات في طلبك، حيث قد يكون من غير الممكن إعادة تحديد الموعد.

تعتمد درجات اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) على عدد الإجابات الصحيحة التي تم وضع علامة عليها. لا يوجد خصم درجات للأجوبة الخاطئة. إذا لم تكن متأكداً من إجابة ما، يجب عليك وضع علامة على الإجابة التي تعتقد بأنها الأصح. يجب عليك عدم انفاق وقت طويل في الإجابة على أي سؤال واحد. أجب على كل سؤال بأفضل ما تستطيع أو دعه جانباً وانتقل إلى السؤال الذي يليه. إذا كان لديك وقت في نهاية الاختبار، يمكنك العودة إليه.

يتم مسح كل ورقة إجابة وتسجيل نتيجتها إلكترونياً، وعدد الأجوبة الصحيحة، والتي تسمى النتيجة الخام، يتم تحديدها لكل تلميذ (ة) يؤدي الاختبار. ولأن هناك عدة نماذج لاختبار (SHSAT)، فإن النتائج الخام من أشكال الاختبارات المختلفة لا يمكن مقارنتها بصورة مباشرة. لقد تم تصميم نماذج الاختبارات بحيث تكون متشابهة بأقصى قدر ممكن ولكنها غير متطابقة.

برنامج الاكتشاف

كما جاء في قانون ولاية نيويورك، يمكن للمدارس الثانوية المتخصصة أن تقوم برعاية برنامج استكشاف (Discovery Program) لمنح التلاميذ الأقل حظاً ممن يظهرون إمكانات كبيرة فرصة حضور أحد برامج المدارس الثانوية المتخصصة. وسوف يتم إخطار التلاميذ بالمدارس التي ترعى برنامج (Discovery Program) وما إذا كانوا مؤهلين للمشاركة فيه في ربيع عام 2017.

لكي يكون التلميذ مؤهلاً، يجب عليهم:

1. الحصول على درجات في حدود نطاق معين من الدرجات تكون أقل من الدرجة المؤهلة في اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT). سوف تختلف النتائج المؤهلة من سنة إلى سنة وسوف تعتمد على توفر المقاعد؛ إضافة إلى؛
2. أن يكونوا قد أدرجوا إحدى المدارس الثانوية المتخصصة التي تخطط لاستضافة برنامج Discovery Program لعام 2017، ضمن الخيارات الموجودة في ورقة إجابة اختبار القبول بالمدارس الثانوية المتخصصة (SHSAT) لعام 2016؛
3. الحصول على إثبات من المدرسة الحالية بأن التلميذ أقل حظاً؛
4. الحصول على تزكية من المدرسة الحالية على أنه لديه إمكانات كبيرة لبرنامج المدارس الثانوية المتخصصة.

يتعين على العائلات، بعد إخطارهم بالأهلية، الاجتماع مع موجه المدرسة لمناقشة طلب التقديم ببرنامج الاستكشاف. ولن يتم قبول كل التلاميذ المؤهلين في برنامج الاكتشاف (Discovery Program). التلاميذ الذين ينجحون في استيفاء متطلبات البرنامج الصيفي سوف يتم منحهم عرضاً للالتحاق بمدرسة رابعة لبرنامج الاستكشاف. والتلاميذ الذين لم ينجحوا سوف يداومون في المدرسة التي تم تعيينها لهم من قبل. يجب أن يتحدث التلاميذ مع الموجه الإرشادي الخاص بهم إذا كان لديهم أية أسئلة. لمزيد من المعلومات حول متطلبات التأهيل، يُرجى زيارة <http://schools.nyc.gov/ChoicesEnrollment/High/specialized>.

PARENTS/GUARDIANS ARE ENCOURAGED TO REVIEW THE FOLLOWING TIPS WITH THEIR CHILDREN SO THAT THEY ARE WELL PREPARED FOR THE TEST.

BEFORE TEST DAY

The best way to improve your verbal skills is to read many books and articles on different topics. Reading widely will help you expand your vocabulary and improve your comprehension. While reading, ask yourself: What is the main point? What can be deduced? Why does the author use certain words? Is this article well written?

Knowing what to expect on the test and having some practice in test taking is beneficial. This handbook describes each part of the test and contains two sample tests to use as practice. Each sample test contains questions from previous tests and has been updated to match the 2016 tests as closely as possible. A list of correct answers is provided for each test, along with explanations.

Simulating the actual testing situation helps. You will have two and a half hours (150 minutes) to complete the test. During your practice test, how you allot the time between the verbal and mathematics sections is up to you. You may start with either section. Use the practice test to decide how much time you will spend on each section to keep yourself on pace and manage your time on test day. For example, will you spend 75 minutes on each section, or will you spend more time on one section than another? Will you leave certain questions for the end? You may return to one section if you have time remaining after finishing the other section. Mark your answers on the answer sheet provided in this handbook. Remember, on the actual test, you will not be given extra time to mark your answers on the answer sheet after time is up.

After you complete the practice test, check your answers against the list of correct answers. Read the explanations of the correct answers to see the kinds of mistakes you may have made. Did you read too quickly and misunderstand the question? Did you make careless errors in computation? Did you choose answers that were partially correct, but were not the best answers? Were many of your wrong answers guesses? You also should check to see whether there is a pattern to your errors. For example, did you get all of the inequality questions wrong? Did you leave any answers blank? Seek out opportunities to do more practice in areas that challenged you.

Put this handbook away for a few days, and then take the second sample test, following the same procedure. Be aware that how well you do on these sample tests is not a predictor of your score on the actual test. However, these tests will give you an idea of what to expect when taking the SHSAT.

DAY OF THE TEST

Prepare yourself. The night before the test, remember to get a good night's sleep. Bring your signed Test Ticket with you to your assigned test site and make sure it includes a parent/guardian signature and your ranked choices of Specialized High Schools. Arrive at your assigned test site on time. Wear comfortable clothes and bring a non-calculator watch to keep track of the time. Make sure that you have several sharpened Number 2 pencils and an eraser that erases cleanly. Do not bring personal electronic devices such as an iPod, calculator, tablet/iPad or ebook reader to the test. You may bring a cell phone but it will be turned off and collected by your proctor for the duration of the test.

Plan your time. Be aware of the total number of questions and the amount of time you have to complete the test. Work carefully, but keep moving at a comfortable pace and keep track of the time. Listen carefully to your test proctor and all instructions regarding time. Be sure to place all answers on the answer sheet. You will not be given additional time to transfer your answers from the test booklet or any scrap paper to the answer sheet after time is up.

Read the instructions carefully. Be sure you understand the task before marking your answer sheet. For each question, read all the choices before choosing one. Many questions ask for the best answer; it is important to compare all the choices to determine the choice that best answers the question.

Mark your answers carefully. This is a machine-scored test, and you can lose credit by marking the wrong answer bubble or marking the answers to two questions on the same line. Make sure the number on the answer sheet matches the number of the question in your test booklet. To change an answer, erase the original mark completely. If two bubbles are filled in for a question, that question will be scored as incorrect. Avoid making stray pencil marks on your answer sheet. You may write in your test booklet to solve verbal or mathematics problems, but remember that only answers recorded on the answer sheet will be counted.

There is no penalty for a wrong answer. Your score is based on the number of correct answers marked on the answer sheet. Therefore, omitting a question will not give you an advantage, and wrong answers will not be deducted from your right answers. Fill in any blanks when the time limit is almost up.

Make an educated guess when you do not know the answer to a question. Do this by eliminating the answer choice(s) that are definitely wrong, and then choose one of the remaining answers.

Be considerate of other students during the test. Do not chew gum or make noises or movements that would be distracting to others.

If you finish before time is up, go back over your work to make sure that you followed instructions, did not skip any questions, and did not make careless mistakes. Students must remain in the testing room for the entire duration of the test (150 minutes).

SCRAMBLED PARAGRAPHS

The scrambled paragraph portion of the test measures your ability to organize written material according to the sequence of ideas and/or cues provided by transitional words and phrases. There are five paragraphs, each consisting of six sentences. The first sentence is provided, with the remaining five presented in random order. You are to arrange the sentences in the author’s original order using cues contained in the sentences. Only one arrangement of each set of sentences will form a well-organized, cohesive, grammatically correct paragraph. **Each correctly ordered paragraph is worth double the value of a question in any other section of the test.**

The sentences contain words and phrases that help to identify the flow of ideas from one sentence to the next, perhaps describing a procedure or tracing a historical event. The sentences may also provide grammatical cues as to how to construct the paragraph. For example, the pronoun “she” may refer to someone mentioned in a previous sentence. Transitional words such as “although” and “however” also provide cues about how the sentences relate to one another.

As you put the sentences in order, it may help to write the correct position of each sentence in the blank to the left.

For example, write “2” next to the sentence that you think follows the first sentence, “3” next to the sentence you think follows “2,” and so on.

Read **Example 1**. After reading all the sentences, you should have an idea of what the paragraph is about. Now go back to the given sentence and determine which sentence should come next. The given sentence states that scientists have “long known” that chimpanzees use tools. Sentence Q, with its opening phrase “more recently” creates a contrast with the given sentence. Q also makes a transition from the given sentence, from chimps’ use of tools for one purpose (food gathering and preparation) to their use of tools for “other purposes.”

U follows Q because “these researchers” in U refers to the researchers introduced in Q. In addition, U names the individual chimp (Kalunde) and adds the information that Kalunde had the flu. R continues the reference to Kalunde’s illness by describing his symptoms—cough and congestion. S presents the result of this congestion: Kalunde had to breathe through his mouth, which made eating difficult. T shows how Kalunde used a tool—a twig or plant stem—to clear his congestion, which concludes the paragraph. QURST has made a paragraph that is logically and grammatically correct.

QRUST might look appealing, but its transition from Q to R is poor. Q does not say anything about an illness, nor does it name the chimp, yet R refers to “the afflicted Kalunde,” as

Example 1

Scientists have long known that chimpanzees have the ability to invent and use tools for the purpose of gathering and preparing food.

- _____ Q. However, more recently, researchers have observed a Tanzanian mountain chimpanzee demonstrate that chimps are also capable of inventing tools for other purposes.
- _____ R. The afflicted Kalunde suffered from a hacking cough and severely congested nasal passages.
- _____ S. This congestion forced Kalunde to breathe through his mouth, so he needed to clear his nasal passages in order to eat.
- _____ T. On four separate occasions, researchers observed Kalunde accomplish this goal by inserting a twig or plant stem into his nose, thus stimulating his reflex to sneeze.
- _____ U. These researchers were studying Kalunde, who, like many other chimps in his group, had a case of the dry-season flu.

Example 1

The second sentence is	●	R	S	T	U
The third sentence is	Q	R	S	T	●
The fourth sentence is	Q	●	S	T	U
The fifth sentence is	Q	R	●	T	U
The sixth sentence is	Q	R	S	●	U

SPECIFIC STRATEGIES **VERBAL** *continued...*

though Kalunde had already been mentioned, and describes his symptoms. The chimp’s illness is not introduced until the following sentence (U). The resulting paragraph is poorly organized.

QUSTR is also incorrect. When R, which describes Kalunde’s flu symptoms, is placed last, the paragraph becomes disjointed. The previous sentence (T) has said that Kalunde accomplished his goal of clearing his nasal passages after using a tool. R describes Kalunde’s condition **before** he used his tool, so it should appear earlier in the paragraph, as it does in the correct order (QRST).

LOGICAL REASONING

This section consists of 10 questions that assess your ability to reason logically, using the facts, concepts, and information presented. **You must guard against jumping to conclusions that are not warranted from the information given.** There are different types of questions: figuring out codes, determining the relative positions of things or people, identifying correct assumptions, and drawing valid conclusions.

The most important strategy is to read the information carefully and make no assumptions that are not supported by the given information. Certain words must be read carefully. For example, **between** cannot be assumed to mean **between and right next to**; other things may be between these two objects as well. The same may be true of words such as **above, below, before, and after.**

Another good strategy is to look for information that is definitely stated, such as, “The red box is the largest,” or “Jane is not standing next to Erik.” This information makes it easier to determine the relative relationships.

For **Example 2**, draw a diagram to help you determine the order in which the planes departed. Statement 2 contains definite information about the Washington plane, so add that to the diagram:

1st	
2nd	
3rd	Washington
4th	
5th	

The remaining planes fly to Boston, Philadelphia, Cleveland, and Denver. Statement 3 says that the Denver plane left imme-

diately after the Cleveland plane. (That means no planes departed between the Cleveland and Denver planes.) There are two possible orders, shown below:

1st	Cleveland		
2nd	Denver		
3rd	Washington	OR	Washington
4th			Cleveland
5th			Denver

The information in Statement 1 helps you determine which possible order is correct. It says that the Boston plane departed earlier than the Cleveland plane. That could not happen in the first possible order, so the second possible order must be correct. Because statement 1 also says that the Boston plane departed later than the Philadelphia plane, the complete order of departure must be:

1st	Philadelphia
2nd	Boston
3rd	Washington
4th	Cleveland
5th	Denver

The question asks how many planes left **between** the departures of the Boston and Denver planes. The answer is two (the planes departing for Washington and Cleveland).

Example 2

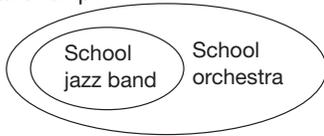
Exactly five planes departed from an airport, one at a time.

- 1) The Boston plane departed later than the Philadelphia plane, but earlier than the Cleveland plane.
- 2) The Washington plane departed third.
- 3) The Denver plane left immediately after the Cleveland plane.

How many planes left between the departures of the Boston plane and the Denver plane?

- A. 0
- B. 1
- C. 2
- D. 3
- E. Cannot be determined from the information given.

To answer **Example 3** correctly, it is important to understand the relationships among the members of the three musical groups. According to the question, every member of the jazz band is also a member of the orchestra. Draw a diagram to illustrate this relationship:



Some members of the choir are also members of the orchestra. The question says that Patrick is a member of exactly two of these groups, but it does not specify which groups. He could be in the jazz band and the orchestra, or he could be in the orchestra and the choir. He cannot be in the jazz band and the choir because membership in the jazz band implies membership in the orchestra, which adds up to memberships in three musical groups, not two.

Read each option and evaluate whether it **must** be true, based on the information given. Option F must be true; if Patrick is in the jazz band, then his second group is the orchestra, not the choir. The other options may or may not be true, but we cannot conclude that any of them **must** be true. Option H looks appealing, but it has changed the information given in the question. “Every member of the school jazz band is also a member of the school orchestra” does not mean “Every member of the school orchestra is also a member of the school jazz band.”

When the question involves a code, as in **Example 4**, do not solve for all parts of the code. Solve only those parts that relate to the question. Read the directions carefully. The letters in a sentence may or may not appear in the same order as the words they represent in that sentence. For example, in the

Example 3

Every member of the school jazz band is also a member of the school orchestra. Some members of the school choir are also members of the school orchestra. Patrick is a member of exactly two of these musical groups.

Based only on the information above, which of the following **must** be true?

- F. If Patrick is in the school jazz band, he is not in the school choir.
- G. If Patrick is in the school orchestra, he is not in the school choir.
- H. If Patrick is in the school orchestra, he must be in the jazz band.
- J. All members of the school orchestra are in at least two of these musical groups.
- K. All members of the school choir are in at least two of these musical groups.

first sentence, the first letter (L) may or may not represent the first word (Michelle).

In **Question 1**, the word “ships” appears only in the fourth sentence, so its corresponding letter must appear only in the fourth sentence. Letters Y and X (Options A and C) appear only in the fourth sentence. Is it possible to determine which letter represents the word “ships”? No, because the fourth sentence also contains another word, “Ivan,” that does not appear in any other sentence. It is impossible to determine which letter represents “ships” and which letter represents “Ivan.” Thus the correct answer is Option E, “Cannot be determined from the information given.” The letters N and W (Options B and D) appear in the fourth sentence, but they can be ruled out because N also appears in the second sentence, and W also appears in the first sentence.

In **Question 2**, the letter V appears in the second and third sentences, but not in the first and fourth sentences. Find a word that also appears only in the second and third sentences.

Example 4

Questions 1 and 2 refer to the following information.

In the code below, (1) each letter always represents the same word, (2) each word is represented by only one letter, and (3) in any given sentence, the letters may or may not be presented in the same order as the words.

L W Q P R means
 “Michelle paints planes and birds.”

Z V R U N means
 “Stuart draws cars and dogs.”

L V P T R means
 “Jesús paints cars and planes.”

Y X R N W means
 “Ivan draws birds and ships.”

1. Which letter represents the word “ships”?
 - A. Y
 - B. N
 - C. X
 - D. W
 - E. Cannot be determined from the information given.
2. Which word is represented by the letter V?
 - F. draws
 - G. paints
 - H. cars
 - J. and
 - K. planes

The word is “cars,” which is Option H. The other options cannot be correct. The letter V appears in the same position as “draws” in the second sentence and “paints” in the third sentence, but that does not mean it represents either word. In fact, the word “draws” also appears in the fourth sentence, and “paints” also appears in the first sentence, so neither word can be represented by the letter V. The word “and” (Option J) appears in all four sentences, so it can be ruled out. The word “planes” appears in the first and third sentences, so the letter V cannot represent that word.

READING

This section measures your ability to read and comprehend five informational passages. Each passage is 400 to 500 words long. The subjects include short biographies, discussions of historical events, descriptions of scientific phenomena, brief essays on art or music, discussions with a point of view, and human interest stories.

Example 5

Mary Cassatt defied tradition, family, and public opinion to become one of the most celebrated artists of the United States. Born in 1845, the daughter of a wealthy Pittsburgh banker, Cassatt spent several years of her childhood with her family in Europe. As she grew older, she gave up a life of ease to choose a path that at the time was almost impossible for a woman to follow. In 1861, while many of her friends were entering the social world of the upper classes, Cassatt was beginning her studies at the Pennsylvania Academy of Fine Arts. After four years, however, she felt stifled by the rigid curriculum. Against her father’s wishes, she decided to return to Europe to study painting.

Cassatt spent several years, mainly in France and Italy, immersing herself in the works of great European painters of the past. Finally, in 1872, she settled in Paris permanently. There, Cassatt came to admire the work of the French Impressionists, a group of “outsiders” that included Degas, Monet, and Renoir. Unlike mainstream artists who produced the dark, polished, and detailed paintings favored by traditionalists and critics, these artistic revolutionaries applied pigment to the canvas in small dabs of pure color to achieve an illusion of light. Works painted in this manner presented not photograph-like detail but a softer focus that conveyed a highly personalized impression.

This new movement inspired Cassatt. Discarding the traditional European style, she adopted the luminous tones of the impressionists. Particularly interested in the human figure, Cassatt began creating pastels of groups of women—on outings in the park, having tea, and so forth. In 1879, Edgar Degas invited her to exhibit with the impressionists, and her paintings were included in four of their next five shows. Cassatt and Degas admired each other’s work and a loyal friendship developed. It was Degas who first suggested the mother-child theme that became the hallmark of Cassatt’s later work.

Throughout her years in Europe, Cassatt kept in touch with her wealthy friends in the United States, introducing them to impressionist art. Many of the excellent collections of impressionist paintings in this country are to a great extent the result of her influence. As a woman and as an American, Cassatt stood virtually alone among the impressionist painters. Since her death in 1926, the work of the “Impressionist from Pennsylvania” has been avidly sought by collectors.

SPECIFIC STRATEGIES **VERBAL** *continued...*

Each passage has six questions that ask you to identify and analyze key ideas and details, as well as draw conclusions from the information presented.

In order to ensure a thorough understanding of the text, read the passage carefully rather than skimming it. This will help prevent you from making inaccurate assumptions based on only a few details. After reading the passage, try answering each question before reading the answer choices. Then look at the choices to see which is closest to your answer. If none seem to be your answer, read the question again. You may also reread the passage before you choose your answer.

Ask yourself whether the question requires you to draw a conclusion or inference from statements in the passage or simply to identify a restatement of the facts.

Base your answers only on the information presented in the passage. Do not depend solely on your prior knowledge of the topic. Enough information will be given for you to arrive at the correct answer.

Example 5 *continued...*

- Which of the following best tells what this passage is about?
 - the barriers faced by women artists
 - the mother-child theme in Cassatt's work
 - why Cassatt is considered an early feminist
 - Cassatt's development as an artist
 - a brief history of impressionism
- Why did Cassatt leave the Pennsylvania Academy of Fine Arts?
 - Her father wanted her to study in Europe.
 - She felt the program there limited her creativity.
 - She did not want to enter Pittsburgh society.
 - She wanted to study with the French Impressionists.
 - She wished to rejoin her family.
- What prompted Cassatt to begin using the mother-child theme in her work?
 - It was an appropriate subject for a beginning artist.
 - It was a favorite theme of great European painters of past centuries.
 - It was suggested to her by another artist.
 - It was a common theme in the late nineteenth century.
 - It was favored by the critics.
- Which of the following best describes Cassatt as a young woman, before 1865?
 - interested in fashion and social standing
 - an independent thinker
 - friend to many French Impressionists
 - a painter in the impressionist style
 - a successful artist in her own right
- How was Cassatt unusual among impressionist painters?
 - Her painting style created the illusion of light.
 - She was befriended by Degas.
 - She managed to remain in the artistic mainstream of her day.
 - Her paintings have gained in value and popularity.
 - She was an American woman.
- In what way does the writer suggest that Cassatt influenced art collections in the United States?
 - She was an avid art collector in her own right.
 - She preferred to paint pastels of women and children.
 - She showed impressionist art to her wealthy American friends.
 - She settled in Paris permanently.
 - She exhibited regularly with the impressionists.

QUESTION 1

The correct answer must encompass the main points without being overly broad. Options A and B are details, not the main theme. Option E is too broad. The passage focuses on only one impressionist painter, Mary Cassatt. Option C looks attractive, and while Cassatt is depicted as an independent and confident woman, which might be considered traits of a feminist, that term is not used in the passage and requires an inference that is not supported by the passage. Option D is best. The phrase “development as an artist” includes Cassatt’s background, education, artistic style, subject matter, and influence on the art world.

QUESTION 2

The answer to this question is found directly in the reading passage (lines 14-15). “Stifled” in this sense means repressed or held back. Option G restates this idea. Option F is not true, and Option H does not explain why she left her studies. Cassatt had not yet decided to study with French Impressionists (Option J), so that cannot be the reason. Option K is not mentioned.

QUESTION 3

The mother-child theme in Cassatt’s work is discussed in lines 45-48. It was first suggested by Edgar Degas, a fellow artist, which is Option C. The other options are not supported by details in the passage.

QUESTION 4

The question asks for a description of Cassatt before 1865. In 1865, she left the Pennsylvania Academy of Fine Arts to study in Europe. Option F cannot be correct; she was never interested in fashion and social standing. Options H, J, and K are descriptive of dates much later than 1865. Option G, “an independent thinker,” best describes the young woman who left the social world of the upper classes and returned to Europe against her father’s wishes.

QUESTION 5

The answer to this question can be found in the last paragraph. Lines 55-57 state, “As a woman and as an American, Cassatt stood virtually alone among the impressionist painters.” In other words, she was unusual as a female American impressionist painter (Option E). Option A was true of all impressionists, not just Cassatt. The passage provides no evidence that her friendship with Degas made her unusual (Option B). Option C is not true; by joining the impressionists (called “outsiders” in line 24), she left, not remained in, the artistic mainstream of her day. Option D is true of many artists, so it is not what made Cassatt unusual.

QUESTION 6

Art collections in the United States are mentioned in the last paragraph. Cassatt introduced impressionist art from Europe to her wealthy American friends, thus influencing many of them to buy it. Option H best summarizes this idea. Option F is not correct; the question asks about art collections in the United States in general and F does not indicate any connection to other art collections. Options G and J, while true, do not explain how Cassatt influenced art collections in the United States. Similarly, the passage does not relate the exhibitions mentioned in Option K to art collections in the United States.

This section includes arithmetic, algebra, probability, statistics, and geometry problems. The technical terms and general concepts in these test questions can be found in the New York State Education Department **P-12 Common Core Learning Standards for Mathematics**. Most problems involve application of topics covered in the **Common Core**; however, since the **Common Core** is just an outline, not all details of a topic are provided. Consequently, some aspects of a question may not be mentioned. As one of the purposes of this test is to identify students who will benefit from an education at a Specialized High School, the SHSAT contains many questions that require using mathematical ability to respond to novel situations.

The NYSED P-12 Common Core Learning Standards for Mathematics can be downloaded from the New York State Education Department website: www.nysed.gov.

TIPS FOR TAKING THE MATHEMATICS SECTION OF THE SHSAT

To improve your mathematics skills, choose a mathematics textbook for your grade level and solve five to ten problems every day. Do both routine and challenging problems. Routine problems reinforce basic mathematical skills. More challenging problems help you understand mathematics concepts better. Do not give up if you cannot complete some of the problems. Skip them and move on. You may be able to solve them after you have practiced different types of problems. Also, do not limit yourself to types of problems that test what you have learned in your mathematics class only.

YOU MUST KNOW THE MEANINGS OF TECHNICAL TERMS such as “parallel” and “perpendicular” that are appropriate to your grade level, as well as the customary symbols that represent those terms. You also need to **know various formulas** such as those for the perimeter and area of different figures. You can find these technical terms, symbols, and formulas in your mathematics textbook. These terms, symbols, and formulas will **NOT** be given in the test booklet. Practice using them until you are comfortable with the terms and formulas.

READ EACH PROBLEM CAREFULLY and work out the answer on scrap paper or in your test booklet. **Do not calculate on your answer sheet.**

MOST PROBLEMS SHOULD BE DONE by **working out the answer**. This is more efficient than trying out the options to see which one fits the question. The only exception is when you are explicitly asked to look at the options, as in, “Which of the following is an odd number?”

IF THE QUESTION IS A WORD PROBLEM, it often is helpful to **express it as an equation**. When you obtain an answer, look at the choices listed. If your answer is included among the choices, mark it. If it is not, reread the question and solve it again.

THE INCORRECT CHOICES are often answers that people get if they misread the question or make common computational errors. For this reason, it is unwise to solve a problem in your head while looking at the possible choices. It is too easy to be attracted to a wrong choice.

IF YOUR ANSWER IS NOT AMONG THE ANSWER CHOICES, write your answer in a different form. For example, $10(x + 2)$ is equivalent to $10x + 20$.

YOU MAY DRAW FIGURES OR DIAGRAMS for questions that do not have them.

SOME QUESTIONS ASK YOU to combine a series of simple steps. Take **one step at a time**, using what you know and what the question tells you to do.

THE SAMPLE TESTS IN THIS HANDBOOK are Grade 8 forms. If you are taking the Grade 9 test, work the problems on pages 110-112 as well. These problems cover topics that are introduced in the Common Core for Grade 8.

EXAMPLE 6

$$-4(x - 2) \leq 16$$

What is the solution to the inequality shown above?

- A. $x \geq -6$
- B. $x \geq -2$
- C. $x \leq 2$
- D. $x \geq 6$
- E. $x \leq -2$

IN EXAMPLE 6, $-4(x - 2) \leq 16$

Divide both sides by -4 , remembering to change the direction of the sign since both sides are divided by a negative number.

$$\begin{aligned} x - 2 &\geq -4 \\ x &\geq -2 \end{aligned}$$

EXAMPLE 7

The measures of the angles of a triangle are in the ratio 1:2:3. What is the measure of the largest angle?

- F. 30°
- G. 60°
- H. 90°
- J. 150°
- K. 180°

IN EXAMPLE 7, let x equal the smallest angle of the triangle. Then, the three angles are x , $2x$, and $3x$. The sum of the angles of a triangle is 180° . Set up an equation using this to find x :

$$\begin{aligned} x + 2x + 3x &= 180 \\ 6x &= 180 \\ x &= 30 \end{aligned}$$

Since the question asks for the measure of the largest angle, $3x = 3(30) = 90^\circ$.

EXAMPLE 8

What is the greatest common factor of 98 and 42?

- A. 2
- B. 3
- C. 6
- D. 7
- E. 14

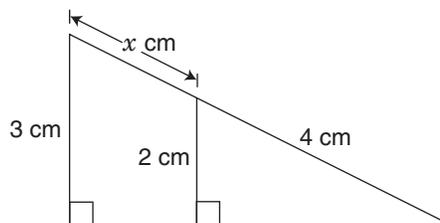
IN EXAMPLE 8, first find the prime factorizations of 98 and 42:

$$\begin{aligned} 98 &= 2 \cdot 7 \cdot 7 \\ 42 &= 2 \cdot 3 \cdot 7 \end{aligned}$$

Next, find the prime numbers that are in both prime factorizations (2 and 7). The product of those prime factors is the greatest common factor ($2 \cdot 7 = 14$)

EXAMPLE 9

(9th Grade item)



In the figure above, what is the value of x ?

- F. -6 cm
- G. $-\frac{5}{2}$ cm
- H. $-\frac{4}{3}$ cm
- J. 2 cm
- K. 6 cm

IN EXAMPLE 9, the two triangles are similar, so set up a proportion to solve for x :

$$\begin{aligned} \frac{x + 4}{3} &= \frac{4}{2} \\ 2(x + 4) &= 12 \\ x + 4 &= 6 \\ x &= 2 \end{aligned}$$

TAKING THE SAMPLE TESTS

Now you are ready to try sample test Form A. Begin by carefully reading the Directions on pages 32 and 33 and filling out side 1 of the Answer Sheet on page 34. For Form A, use side 2 of the Answer Sheet (page 35). When you are ready for Form B, use the Answer Sheet on page 73. You may tear out pages 35 and 73 to make it easier to mark your answers.

If you are taking the Grade 9 test, work the problems on pages 110-112 as well.

NEW YORK CITY PUBLIC SCHOOLS

2016 Specialized High Schools

ADMISSIONS TEST

GENERAL DIRECTIONS

Identifying Information

Turn to Side 1 of the answer sheet. **Line 1** says, “I am well enough to take this test and complete it. I understand that once I break the seal of the test booklet, I may not be eligible for a make-up test. I am a New York City resident and a Grade 8 student taking a Grade 8 test. I understand that a student who is not a New York City resident, who takes the test more than once in a given school year, or who takes the test at the wrong grade level will be disqualified from acceptance to any of the specialized high schools.” Sign your name in the space following the word “signature.” Do not print your name. **Notify the proctor immediately if you are ill or should not be taking this test. Do not sign the statement or begin the test. Return your answer sheet to the proctor.**

On **Line 2**, print today’s date, using the numbers of the month, the day, and the year. On **Line 3**, print your birth date with the number of the month first, then the number of the day, then the last two digits of the year. For example, a birth date of March 1, 2002, would be 3-1-02.

In **Grid 4**, print the letters of your first name, or as many as will fit, in the boxes. Write your name exactly as you did on the application. If you have a middle initial, print it in the box labeled “MI.” Then print your last name, or as much as will fit, in the boxes provided. Below each box, fill in the circle that contains the same letter as the box. If there is a space in your name, or a hyphen, fill in the circle under the appropriate blank or hyphen.

Make **dark marks** that **completely fill the circles**. If you change a mark, be sure to erase the first mark completely.

Grid 5 is for your choice of specialized high schools. If Grid 5 is not marked correctly, your admission to a specialized high school will be affected because your admission is based on the score you attain and the order in which you rank your school preferences. The school choices indicated on your answer sheet are final. Therefore, carefully copy the order in which you ranked the schools on your admission ticket onto Grid 5.

Fill in one and only one circle for each school for which you wish to be considered. You may make as few as one or as many as eight choices. To increase your chances of being assigned to one of the specialized high schools, you are encouraged to make more than one choice. You **must** fill in a first choice school. Do not fill in a school more than once. Do not fill in the same school for each choice. Fill in only one circle in a row and only one circle in a column.

Grid 6 asks for your date of birth. Print the first three letters of the month in the first box, the number of the day in the next box, and the year in the last box. Then fill in the corresponding circles.

For **Grid 7**:

1. Print the name of the school where you are now enrolled in the space at the top of the grid.
2. In the boxes marked “SCHOOL CODE,” print the six-digit code that identifies your school and fill in the circle under the corresponding number or letter for each digit of the school code. (You can find your school code on your Test Ticket. If it is not there, you or the proctor should look in the Feeder School List under the borough in which your school is located to find the code for your school.)
3. If you attend a private or parochial school, fill in the circle marked “P”.

Grid 8 is labeled “STUDENT ID NUMBER.” All SHSAT test-takers should write their student ID number in Grid 8. The student ID number is found on your Test Ticket. In the boxes, print your nine-digit student ID number. Below each box, fill in the circle containing the same number as in the box.

**DO NOT OPEN THIS BOOKLET
UNTIL YOU ARE TOLD TO DO SO
TURN YOUR BOOKLET OVER TO THE BACK COVER**

GENERAL DIRECTIONS, continued

Grid 9 is labeled “BOOKLET LETTER AND NUMBER.”

In most cases, Grid 9 is already filled in for you. If it is not, copy the letter and numbers shown in the upper-right corner of your test booklet into the boxes. Below each box, fill in the circle containing the same letter or number as the box.

Now review Side 1 to make sure you have completed all lines and grids correctly. Review each column to see that the filled-in circles correspond to the letters or numbers in the boxes above them.

Turn your answer sheet to Side 2. Print your test booklet letter and numbers, and your name, first name **first**, in the spaces provided.

Marking Your Answers

Be sure to mark all your answers in the row of answer circles corresponding to the question number printed in the test booklet. Use a Number 2 pencil. If you change an answer, be sure to erase it completely. **You may write in your test booklet to solve verbal or mathematics problems, but your answers must be recorded on the answer sheet in order to be counted.** Be careful to avoid making any stray pencil marks on your answer sheet.

Each question has only one correct answer. If you mark more than one circle in any answer row, that question will be scored as incorrect. Select the **best** answer for each question. Your score is determined by the number of questions you answered correctly. **It is to your advantage to answer every question, even though you may not be certain which choice is correct.** See the example of correct and incorrect answer marks below

SAMPLE ANSWER MARKS					
1	(A)	(B)	(C)	(D)	● RIGHT
2	(A)	(B)	(C)	(D)	(E) WRONG
3	(A)	(B)	(C)	(D)	(E) WRONG
4	(A)	(B)	(C)	(D)	(E) WRONG
5	(A)	(B)	●	●	(E) WRONG

AA

Planning Your Time

You have 150 minutes to complete the entire test. How you allot the time between the Verbal and Mathematics sections is up to you. **If you begin with the Verbal section, you may go on to the Mathematics section as soon as you are ready. Likewise, if you begin with the Mathematics section, you may go on to the Verbal section as soon as you are ready.** It is recommended that you do not spend more than 75 minutes on either section. If you complete the test before the allotted time (150 minutes) is over, you may go back to review questions in either section.

Work as rapidly as you can without making mistakes. Don't spend too much time on a difficult question. Return to it later if you have time.

Students must remain for the entire test session.

Example 1

DIRECTIONS: Solve the problem. Find the **best** answer among the answer choices given.

- E1.** If four ice cream cones cost \$2.00, how much will three ice cream cones cost?

- A. \$0.50
- B. \$1.00
- C. \$1.25
- D. \$1.50
- E. \$1.75

EXAMPLE ANSWER					
E1.	(A)	(B)	(C)	●	(E)

**DO NOT OPEN THIS BOOKLET UNTIL
YOU ARE TOLD TO DO SO**



Student's First Name (please print) _____

Student's Last Name (please print) _____

PART 1 VERBAL

SCRAMBLED PARAGRAPHS

Paragraph 1

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

Paragraph 2

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

Paragraph 3

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

Paragraph 4

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

Paragraph 5

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

LOGICAL REASONING

- | | | | | | | | | | |
|------|---|---|---|---|------|---|---|---|---|
| 11 A | B | C | D | E | 33 A | B | C | D | E |
| 12 F | G | H | J | K | 34 F | G | H | J | K |
| 13 A | B | C | D | E | 35 A | B | C | D | E |
| 14 F | G | H | J | K | 36 F | G | H | J | K |
| 15 A | B | C | D | E | 37 A | B | C | D | E |
| | | | | | 38 F | G | H | J | K |
| 16 F | G | H | J | K | 39 A | B | C | D | E |
| 17 A | B | C | D | E | 40 F | G | H | J | K |
| 18 F | G | H | J | K | 41 A | B | C | D | E |
| 19 A | B | C | D | E | 42 F | G | H | J | K |
| 20 F | G | H | J | K | 43 A | B | C | D | E |
| | | | | | 44 F | G | H | J | K |

READING

- | | | | | | | | | | |
|------|---|---|---|---|------|---|---|---|---|
| 21 A | B | C | D | E | 45 A | B | C | D | E |
| 22 F | G | H | J | K | 46 F | G | H | J | K |
| 23 A | B | C | D | E | 47 A | B | C | D | E |
| 24 F | G | H | J | K | 48 F | G | H | J | K |
| 25 A | B | C | D | E | 49 A | B | C | D | E |
| 26 F | G | H | J | K | 50 F | G | H | J | K |

- | | | | | |
|------|---|---|---|---|
| 27 A | B | C | D | E |
| 28 F | G | H | J | K |
| 29 A | B | C | D | E |
| 30 F | G | H | J | K |
| 31 A | B | C | D | E |
| 32 F | G | H | J | K |

PART 2 MATHEMATICS

MATHEMATICS PROBLEMS

- | | | | | | | | | | | | | | | | | | | | |
|------|---|---|---|---|------|---|---|---|---|------|---|---|---|---|-------|---|---|---|---|
| 51 A | B | C | D | E | 66 F | G | H | J | K | 81 A | B | C | D | E | 96 F | G | H | J | K |
| 52 F | G | H | J | K | 67 A | B | C | D | E | 82 F | G | H | J | K | 97 A | B | C | D | E |
| 53 A | B | C | D | E | 68 F | G | H | J | K | 83 A | B | C | D | E | 98 F | G | H | J | K |
| 54 F | G | H | J | K | 69 A | B | C | D | E | 84 F | G | H | J | K | 99 A | B | C | D | E |
| 55 A | B | C | D | E | 70 F | G | H | J | K | 85 A | B | C | D | E | 100 F | G | H | J | K |
| | | | | | | | | | | | | | | | | | | | |
| 56 F | G | H | J | K | 71 A | B | C | D | E | 86 F | G | H | J | K | | | | | |
| 57 A | B | C | D | E | 72 F | G | H | J | K | 87 A | B | C | D | E | | | | | |
| 58 F | G | H | J | K | 73 A | B | C | D | E | 88 F | G | H | J | K | | | | | |
| 59 A | B | C | D | E | 74 F | G | H | J | K | 89 A | B | C | D | E | | | | | |
| 60 F | G | H | J | K | 75 A | B | C | D | E | 90 F | G | H | J | K | | | | | |
| | | | | | | | | | | | | | | | | | | | |
| 61 A | B | C | D | E | 76 F | G | H | J | K | 91 A | B | C | D | E | | | | | |
| 62 F | G | H | J | K | 77 A | B | C | D | E | 92 F | G | H | J | K | | | | | |
| 63 A | B | C | D | E | 78 F | G | H | J | K | 93 A | B | C | D | E | | | | | |
| 64 F | G | H | J | K | 79 A | B | C | D | E | 94 F | G | H | J | K | | | | | |
| 65 A | B | C | D | E | 80 F | G | H | J | K | 95 A | B | C | D | E | | | | | |

SAMPLE TEST, FORM A

PART 1 — VERBAL

Suggested Time — 75 Minutes

45 QUESTIONS

SCRAMBLED PARAGRAPHS

PARAGRAPHS 1-5

DIRECTIONS: In this section, arrange each group of sentences to create the best paragraph. The first sentence for each paragraph is given; the remaining five sentences are listed in random order. Choose the order for these five sentences that will create the **best** paragraph, one that is well-organized, logical, and grammatically correct. Each correctly ordered paragraph is worth **double** the value of a question in any other section of the test. No credit will be given for responses that are only partially correct.

To keep track of your sentence order, use the blanks to the left of the sentences. For example, write “2” next to the sentence you think follows the first sentence, write “3” next to the sentence you think follows “2,” and so on. You may change these numbers if you decide on a different order. When you are satisfied with your sentence order, mark your choices on your answer sheet.

Paragraph 1

The Codex Mendoza is a fascinating document describing the culture and traditions of the Aztec Indians before the Spanish conquest.

- _____ **Q.** A boy was often named for the date of his birth or for an animal or ancestor, or even for some event at the time of his birth.
- _____ **R.** The parents would also place in the child’s hands the implements that he or she would use in adult life, gently guiding them in the motions of use.
- _____ **S.** Instruments used to weave and spin were given to the girls, while tools and weapons were given to the boys.
- _____ **T.** One tradition it describes is the feast hosted by the parents of a newborn child to give that child a name.
- _____ **U.** Girls’ names, on the other hand, were frequently created to include the Aztec word for flower, *xóchitl*.

CONTINUE ON TO THE NEXT PAGE ►

Paragraph 2

In the remote mountain country of Nepal, a small band of “honey hunters” carry out a tradition so ancient that it is depicted in drawings dating back 10,000 years.

- _____ **Q.** Throughout this entire dangerous practice, the hunter is stung repeatedly.
- _____ **R.** To harvest the honey from these combs, a honey hunter climbs above the nest, lowers a bamboo-fiber ladder over the cliff, and climbs down.
- _____ **S.** The honeybees that colonize the Nepalese mountainsides are among the largest in the world, building huge honeycombs on sheer rock faces that may be hundreds of feet high.
- _____ **T.** Only veteran honey hunters, with skin that has been toughened over the years, can return from a hunt without the painful swelling caused by these stings.
- _____ **U.** Once he has reached the level of the nest, the hunter uses two sturdy bamboo poles like huge chopsticks to pull it away from the mountainside and into a large basket, which is then lowered to people waiting below.

Paragraph 3

When contemporary Native American tribes meet for a powwow, one of the most popular ceremonies is the women’s jingle dress dance.

- _____ **Q.** During this type of dance, the dancers blend complicated footwork with a series of gentle hops, done in rhythm to a drumbeat.
- _____ **R.** In the past, it is believed, the dress worn by the jingle-dress dancer was adorned by shells.
- _____ **S.** These actions cause decorations sewn on the dancer’s dress to strike each other as she performs, creating a lovely jingling sound.
- _____ **T.** Besides being more readily available than shells, the lids are thought to create a softer, more subtle sound.
- _____ **U.** The modern jingle dress no longer has shells, but is decorated with rows of tin cones, made from the lids of snuff cans, rolled up and sewn onto the dress.

CONTINUE ON TO THE NEXT PAGE ►

Paragraph 4

In the 1880s, John Wesley Powell, an explorer of the Grand Canyon and director of the United States Geological Survey, led the development of the first topographical maps of the entire United States.

- _____ **Q.** This is because streams cut into the land, so contour lines will turn upstream, cross the waterway, and return downstream, creating a V shape, with the “V” pointing upstream.
- _____ **R.** Waterways, such as streams, are usually marked in blue on topo maps, but even if they were not, the presence of one could still be identified using contour lines.
- _____ **S.** Contour lines indicate the slope of the land as well.
- _____ **T.** If the lines are close together, the elevation is changing rapidly and the slope is steep, whereas widely spaced lines depict a gently sloping terrain.
- _____ **U.** Also called “topo maps,” these maps differ from others in using thin brown lines, called contour lines, to connect points of equal elevation.

Paragraph 5

Ancient people of the Mediterranean thought that volcanoes were caused by Vulcan, the Roman blacksmith god.

- _____ **Q.** In the same park, Mauna Loa, at 28,000 feet above the ocean’s floor, is the largest active volcano in the world.
- _____ **R.** There are dozens of active and potentially active volcanoes within the United States, including Kilauea, the most active volcano in the world.
- _____ **S.** Both of these are shield volcanoes, which means that they were formed as lava flowed in all directions from a central vent to form low, gently sloping mountains.
- _____ **T.** Volcanoes, which were named for Vulcan, are vents in the crust of the earth from which molten lava and ash erupt.
- _____ **U.** That volcano, located in Hawaii Volcanoes National Park, has been spewing lava since 1983.

CONTINUE ON TO THE NEXT PAGE ►

LOGICAL REASONING

QUESTIONS 11-20

DIRECTIONS: Read the information given and choose the **best** answer to each question. Base your answer **only on the information given**.

In a logical reasoning test, certain words must be read with caution. For example, “The red house is **between** the yellow and blue houses” does not necessarily mean “The red house is **between and next to** the yellow and blue houses”; one or more other houses may separate the red house from the yellow house or from the blue house. This precaution also applies to words such as **above, below, before, after, ahead of, and behind**.

11. The shortest member of the basketball team is 5 feet 11 inches tall. Cheng is 6 feet 2 inches tall.

Based only on the information above, which of the following **must** be true?

- A. Only members of the basketball team are taller than 5 feet 11 inches.
 - B. Cheng is shorter than some members of the basketball team.
 - C. At least one member of the basketball team is shorter than Cheng.
 - D. Cheng is a member of the basketball team.
 - E. Cheng is the tallest member of the basketball team.
-

12. Javon has three pets at home: a hamster, which is active only at night; a dog, which is active only during the day; and a cat, which alternately sleeps for an hour and then is active for an hour.

Based only on the information above, which of the following **must** be true?

- F. The hamster and the cat will never be active at the same time.
- G. The dog and the cat will never be active at the same time.
- H. There are times when none of the pets is active.
- J. All three animals are active at alternate hours.
- K. There never will be more than two pets active at the same time.

13. There are four towns in Jefferson County: Elmont, Richland, Lendle, and Mopley. Highway 14 is closed from Elmont to Richland because of flooding.

- 1) Lendle is between Elmont and Richland on Highway 14.
- 2) Mopley can be reached from Lendle, without going through Elmont or Richland.

Which of the following statements is a valid conclusion from the statements above?

- A. Mopley is not flooded.
 - B. Either Elmont or Richland is flooded.
 - C. Both Elmont and Richland are flooded.
 - D. No one can drive to Lendle on Highway 14.
 - E. Mopley cannot be reached directly from Elmont.
-

14. Six people are seated at a six-sided table, facing inward, one at each side.

- 1) Jorge sits directly across from Bree.
- 2) Susana sits directly across from Michael.
- 3) Darius sits directly across from Lucy.
- 4) Bree is immediately next to Darius, on his right.
- 5) Susana is immediately next to Jorge.

Who sits on Michael’s immediate left?

- F. Susana
- G. Bree
- H. Lucy
- J. Darius
- K. Cannot be determined from the information given.

CONTINUE ON TO THE NEXT PAGE ►

15. One prize was awarded each week in a three-week contest. The prizes were a trip to Disney World, a big-screen television, and a computer.

- 1) Luis, Michael, and Nadia each won a prize.
- 2) Michael did not win the computer.

Which of the following pieces of additional information makes it possible to determine who won each prize?

- A. Michael won the free trip.
- B. Luis won the television.
- C. Luis won the computer.
- D. Nadia won the computer.
- E. Michael won the television.

16. When Soon Bae listens to music, she also dances. Whenever she dances, she also sings.

Based only on the information above, which of the following is a valid conclusion?

- F. When Soon Bae sings, then she is dancing.
- G. Soon Bae sings only when she is dancing.
- H. When Soon Bae listens to music, then she is also singing.
- J. If Soon Bae is not listening to music, then she is not dancing.
- K. If Soon Bae is not dancing, then she is not singing.

17. At Midway School, each new student is paired with an older student partner. The new students are Bai, Gloria, Sandro, and Henry. The older student partners are Edgar, Paola, Rakim, and Whitney.

- 1) Sandro and Whitney are paired.
- 2) Bai is not paired with Rakim.
- 3) Edgar is not paired with Gloria or Bai.

Who is paired with Paola?

- A. Bai
- B. Gloria
- C. Henry
- D. Edgar
- E. Rakim

18. Jack played three instruments in the orchestra. He played violin for two years, cello for three years, and bass for three years. He never played more than two instruments during the same year. The first year, Jack played only the violin.

What is the **least** number of years Jack could have played in the orchestra?

- F. 4
- G. 5
- H. 6
- J. 7
- K. 8

Questions 19 and 20 refer to the following information.

In the code below, (1) each letter always represents the same word, (2) each word is represented by only one letter, and (3) in any given sentence, the letters may or may not be presented in the same order as the words.

L W Q P R means
"Michelle paints planes and birds."

Z V R U N means
"Stuart draws cars and dogs."

L V P T R means
"Javier paints cars and planes."

Y X R N W means
"Ivan draws birds and ships."

19. Which word is represented by the letter Q?

- A. birds
- B. planes
- C. Michelle
- D. paints
- E. and

20. Which letter represents the word "paints"?

- F. L
- G. P
- H. R
- J. W
- K. Cannot be determined from the information given.

CONTINUE ON TO THE NEXT PAGE ►

READING

QUESTIONS 21-50

DIRECTIONS: Read each passage below and answer the questions following it. Base your answers on information contained only in the passage. You may reread a passage if you need to. Mark the best answer for each question.

On Monday evening, September 26, 1960, seventy million Americans turned on their TV sets to view the first televised political debate in a campaign for the presidency of the United States. As of that date, it was by far the largest number ever to witness a political discussion. The novelty of the event drew even those with little or no interest in politics.

The candidates, Republican Vice President Richard M. Nixon and Democratic Senator John F. Kennedy, had agreed to face each other and the nation in four one-hour sessions that the press dubbed the “Great Debates.” Many expected Vice President Nixon to win the debates easily. He was ahead in the newspaper polls, he was an experienced public speaker, and he had served as vice president for nearly eight years. Senator Kennedy was less well-known and, at forty-three, was the youngest man ever to run for president. Throughout the presidential race, his opponents criticized him for his relative youth and inexperience.

By mutual agreement, the first session was limited to domestic issues within the United States. Each candidate was given eight minutes to make his opening remarks. During the remainder of the hour, the candidates took turns responding to questions posed by selected reporters. Both Kennedy and Nixon dealt with the issues calmly and carefully. Viewers who expected to see a free-for-all were disappointed. The way the two men appeared on the television screen, however, may have been as important as what they said. Kennedy looked at the camera while answering questions, appear-

ing to speak directly to his viewers and give them straight answers. Nixon was recovering from a severe bout of influenza, and he appeared tense and tired. He looked at the reporters who asked the questions instead of at the camera, giving some viewers the impression that he avoided eye contact with his audience, and thus suggesting that he was not trustworthy. Most commentators agreed that Kennedy gained from the encounter: many viewers who had previously felt he lacked the maturity necessary to be president were won over by his charm, poise, and confident manner.

While far fewer people watched the three later sessions, much discussion ensued regarding the influence of the Great Debates on the outcome of the 1960 presidential election. Some feared that the better TV performer was bound to come across as being the better candidate. “Is this a good way to judge a person’s ability to serve as president of the United States?” they asked.

Kennedy ultimately won the election, but it was by the narrowest popular vote margin in more than eighty years. Some observers concluded that, had the Great Debates been broadcast on radio and not on television, Nixon would have won.

CONTINUE ON TO THE NEXT PAGE ►

21. Which of the following best tells what this passage is about?
- A. the careers of Nixon and Kennedy
 - B. how elections have changed since 1960
 - C. domestic issues in the Kennedy-Nixon debates
 - D. the presidential debates of 1960
 - E. the qualifications of Nixon and Kennedy
22. According to the passage, which of the following would have been the most likely result if the candidates had **not** debated on television in 1960?
- F. Kennedy would have won the election anyway.
 - G. The election results would have been much closer.
 - H. Nixon would have had a better chance of winning the election.
 - J. The candidates would not have debated at all.
 - K. Nixon would have improved his on-screen performance.
23. Which of the following did critics in 1960 think could be an undesirable consequence of presidential debates on television?
- A. Candidates might no longer utilize other media to get their messages across.
 - B. By being too cautious on television, candidates might fail to debate the issues seriously.
 - C. Appearing on television might take up too much of a candidate's time.
 - D. Americans might be persuaded to vote for a presidential candidate because of their television performance.
 - E. Americans who did not watch every debate might not be fully informed about the candidates' stands.
24. According to the passage, how did Kennedy benefit from the debates?
- F. His grasp of domestic issues was shown to be superior to Nixon's.
 - G. The debates focused on his years of experience in the Senate.
 - H. He appeared to have attractive personal characteristics.
 - J. He maintained eye contact with the reporters asking the questions.
 - K. Nixon was seen as a superficial TV performer.
25. What evidence does the author provide to support the last sentence of the passage?
- A. Far fewer people watched the three later debates.
 - B. Both candidates dealt with the issues calmly and carefully.
 - C. The candidates did not cause a free-for-all.
 - D. The first debate session was limited to domestic issues.
 - E. Nixon was more experienced and well-known than Kennedy.
26. According to the passage, why did people who were not normally interested in politics tune in to the first of the Great Debates?
- F. Vice President Nixon was a popular politician.
 - G. Television had never before been used in this way.
 - H. They had heard that Kennedy was young and charismatic.
 - J. They wanted to see if the newspaper polls were correct.
 - K. The election was expected to be very close.

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In many cultures, the ugly physical appearance of the bat has given it an unearned reputation as an evil and vicious bearer of diseases. Many people, for example, believe that the little brown bat carries rabies. In fact, it is no more likely to transmit the disease than other animals, such as dogs. Brown bats actually help to prevent disease, not spread it. The basis of their diet is the mosquito, an insect that transmits more diseases than all the bats in the world combined.

A group of bat species known as flying foxes or fruit bats serve another important purpose, as a critical link in the reproduction of many tropical trees and shrubs. In the tropical rain forests of Africa, Asia, and Australia, plants such as avocados, date trees, cashews, and mangoes rely in part on flying foxes for pollination. One of Africa's most valuable hardwood trees, the iroko, is entirely dependent on this type of bat for pollination. Flying foxes feed on flowers, fruit, and nectar, flying from one plant to another and pollinating the plants as they go, much as bees do in other parts of the world. Because they are sloppy eaters, flying foxes drop fruit as they go, dispersing the seeds. They can travel great distances and convey pollen and seeds far from their origins, thereby maintaining the genetic biodiversity within a plant species.

Because of the importance of bats' role in pollination and seed distribution, scientists consider them a keystone in the ecosystems of tropical rain forests. Without bats, many bat-pollinated plants—and the animals that depend on them for food and shelter—would be threatened to the point of extinction. Areas outside the rain forests would be impacted as well, since the rain forests' lush vegetation replenishes the oxygen in the global atmosphere.

Unfortunately, many people are determined to get rid of bats. Flying foxes are at particular risk. In the wild, they feed on wild fruit, but when their rain forest habitat is reduced by conversion into farmland or

residential areas, they occasionally raid cultivated fruit trees, spoiling the crops. Several flying fox species have been hunted to extinction, while others are seriously endangered.

Conservation groups and government agencies in many countries are attempting to change people's attitudes toward bats. When people learn that bats pollinate the trees and crops that provide their livelihood, they are more likely to appreciate and protect the bats in their area. There are also effective, non-harmful ways to deal with troublesome bats. Orchard owners can cover their trees with netting to discourage the bats, and there are humane methods for moving bats from places where they are not wanted. For the sake of the rain forests, and for life forms everywhere that depend on them, it is urgent that people apply a new twist to an old adage, and realize that ugliness is only skin deep.

27. Which of the following best tells what this passage is about?
- A. why plant species in the tropical rain forest are becoming endangered
 - B. how the misunderstood bat benefits other life forms
 - C. why rain forests are an important world resource
 - D. how bats spread rabies and other diseases
 - E. how bats pollinate tropical plants
28. What does the author intend to convey by the statement "ugliness is only skin deep" (line 70)?
- F. Some ugly animals eventually become beautiful.
 - G. Bats are not as ugly as most people think.
 - H. People shouldn't think that bats are harmful simply because they are ugly.
 - J. People who find bats ugly do not believe that bats have an important environmental role.
 - K. Beneficial animals are often considered ugly.

29. Which of the following best describes animal species that function as a “keystone” (line 35)?
- A. They are a major factor in disease prevention.
 - B. They are a food source for other animals.
 - C. They pollinate every plant species.
 - D. They are crucial in maintaining the balance of their ecosystem.
 - E. They generate the oxygen in the atmosphere.
30. What would be the most immediate result if flying foxes became extinct?
- F. Other animal species would take their place.
 - G. Tropical rain forests would become free of disease.
 - H. Many animals would lose a food source.
 - J. Many tropical plants would have difficulty with reproduction.
 - K. The oxygen in the atmosphere would be quickly used up.
31. Why do flying foxes sometimes eat fruit from cultivated fruit trees?
- A. They prefer eating cultivated fruit to wild fruit.
 - B. They are better able to spread pollen from cultivated fruit trees.
 - C. The number of wild fruit trees has decreased.
 - D. Cultivated fruit trees are completely dependent on bats for pollination.
 - E. Declining mosquito populations can no longer feed the bats.
32. What is the most likely reason that the author mentioned the iroko tree?
- F. to provide an example of a useful plant that would die out without flying foxes
 - G. to demonstrate that there are alternate ways to pollinate tropical plants
 - H. to illustrate how rain forests supply oxygen to the atmosphere
 - J. to show what flying foxes will do when wild fruit trees are unavailable
 - K. to encourage farmers to cover their trees with netting

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Anyone who has watched TV news coverage of a hurricane has seen how destructive wind energy can be. But the power of the wind can also be put to constructive use.

5 From sailboats to old-fashioned windmills 5
to the high-tech, modern wind machines
called turbines, people have devised ways to
harness wind energy for thousands of years.

10 The first known attempt to use wind power 10
was the sailboat. Ancient shipbuilders
understood how to use forces like lift and
momentum, even if they could not explain
those forces scientifically. The principles
15 behind sailing led to the development of 15
the windmill. The first known windmills
originated in Persia, an area that is now
Iran, as early as A.D. 500. They were created
to help with the demanding chores of grind-
ing grain and pumping water. By the tenth
20 century, windmills were used throughout 20
central Asia; they were used in China as
early as the thirteenth century.

25 In Europe, windmills came into widespread 25
use during the twelfth century. As in other
parts of the world, they were used for
milling grain and pumping water. Windmills
replaced the water wheel, which was turned
by the movement of running water over pad-
dles mounted around a wheel. The windmill
30 was more adaptable and efficient than the 30
water wheel and quickly became popular.
For example, Holland, famous
for its windmills, used the machines to
pump seawater away from low-lying coastal
35 bogs. This allowed the Dutch to reclaim 35
large areas of land from the sea. Windmills
eventually became sophisticated enough for
use in a broad range of work, from sawmills
and drainage pumping to processing goods
40 such as dyes, tobacco, cocoa, and spices. 40

45 In the 1700s, as steam engines gained in 45
popularity, the use of wind machines for
many types of work declined. However,
windmills still played an essential role in
pumping water on farms throughout the
American West and Midwest. Between 1850
and 1970, over six million small windmills
were installed on American farms for water-

ing livestock and meeting other water needs.

50 In many remote areas even today, livestock 50
production would be impossible without the
use of windmills to provide water.

Beginning in the late nineteenth century,
windmills were adapted to generate
55 electricity. During the 1930s and '40s, 55
thin-bladed windmills provided electricity
for hundreds of thousands of farms across
the United States. By the 1950s, however,
power lines connected almost every house-
60 hold in America to a central power source, 60
such as a utility company. After that, there
was little need for wind turbines until the
energy crisis of the 1970s. At that time,
interest in wind turbines was renewed due
65 to rising energy costs and concern about 65
the future availability of fossil fuels such as
oil, coal, and natural gas. The last several
decades have seen the development of
"wind farms," clusters of wind turbines that
70 generate electricity. Efficient, clean, and 70
fairly inexpensive to operate, wind farms
may prove to be as important in the future
as earlier windmills were in the past.

33. Which of the following best tells what this passage is about?
- A. the destructive power of wind energy
 - B. the ways people have harnessed wind power throughout history
 - C. reasons for developing wind farms to generate electricity
 - D. how windmills are used in the United States
 - E. the use of the windmill in the present day
34. Where were the first known windmills built?
- F. Persia
 - G. North America
 - H. Europe
 - J. China
 - K. Holland

- 35.** Which of the following best expresses the author's opinion regarding the future use of wind energy?
- A.** Wind farms will someday be the only source of electricity in the United States.
 - B.** Wind farms will not be successful in providing large amounts of electricity.
 - C.** A new energy source will be discovered that will diminish interest in wind farming.
 - D.** Wind farms will become an important source of electricity in the United States.
 - E.** Different energy sources will be developed because wind farming is too expensive.
- 36.** The adaptation of old-fashioned water-pumping windmills into wind turbines that generate electricity illustrates
- F.** that modern technology is no improvement over ancient technology.
 - G.** the inability of people to develop new solutions.
 - H.** how wind power will eventually replace all other energy sources.
 - J.** that water cannot be used to produce electricity.
 - K.** the ability of people to think creatively.
- 37.** Why were fewer American farms dependent on windmills for electrical power after the 1950s?
- A.** Windmills were not used for any purpose after that time.
 - B.** The energy crisis had prompted interest in other fuel sources.
 - C.** The energy crisis had stopped the development of wind turbines.
 - D.** A centralized power system had connected almost all American homes.
 - E.** Wind farms had replaced the need for individual windmills.
- 38.** According to the passage, how did windmills aid the growth of the country of Holland?
- F.** Windmills helped Dutch shipbuilders use the forces of lift and momentum.
 - G.** By pumping seawater out, the Dutch turned bogs into usable land.
 - H.** Windmills made the country of Holland famous.
 - J.** By pumping seawater, the Dutch flooded coastal bogs in order to improve ship travel.
 - K.** In Holland, windmills led to the use of water wheels.

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The decade that began with the stock market crash in 1929 and ended with the declaration of war in Europe in 1939 was a turning point for art in the United States. 5
Rejecting European trends, such as 5
abstract art, American painters searched for a style that was distinctly American. It was a time of great social change—a society based on rural and small town life 10
was rapidly being replaced by a society 10
focused on city life and values. Although members of various groups are all referred to as “American Scene” painters, different groups painted their images of the United States in very different ways. 15

One group, sometimes called the Regionalists, included Thomas Hart Benton, Grant Wood, and John Steuart Curry, all from the Midwest. Their art was 20
intensely patriotic and frequently glorified 20
an older, simpler America. Their subject matter included church steeples, New England fishing villages, and midwestern cornfields. Grant Wood’s most famous 25
canvas is probably *American Gothic*, which 25
shows a stiff and proper farm couple, the husband holding a pitchfork. The Regionalists were often muralists as well, painting local scenes on walls of state capi- 30
tols and other public buildings. Enormously 30
popular during the 1930s, Regionalist art is still treasured by many as a fond memory of times gone by.

While the Regionalists remembered the 35
past, other American Scene artists painted 35
the drab realities of the contemporary urban environment, testifying to its loneliness and anonymity. The Urban Realists, including Reginald Marsh, Isabel Bishop, 40
and the Soyer brothers, were associated 40
with the Art Students League in New York. These painters showed the high price paid by individual men and women struggling to survive the Depression. The names of some 45
of their works illustrate the style: *Office 45
Girls, Waiting, The Bowery*. For various reasons, their work has been largely forgotten today.

Edward Hopper was an artist who was 50
associated with the American Scene but 50
otherwise escaped further classification. Like the Urban Realists, he painted the tired dinginess of the urban streets during the Depression. Yet Hopper often found 55
beauty in the midst of the city’s monotony. 55
For example, one of Hopper’s best-known paintings, *Nighthawks*, shows several people sitting like robots in a brightly lit coffee shop at night, each apparently unaware of 60
the others. Hopper was not interested in a 60
return to the past. He presented what he saw without apology or sentimentality.

The American Scene art movement of the 1930s was characterized by realistic paint- 65
ings that expressed the traditions and 65
interests of people in the United States at that time. Because the paintings presented common images and mirrored the lives of many people, the general public readily 70
identified with the subjects of the paintings. 70
With the onset of World War II, a new spirit of internationalism swept through the art of the United States, and the American Scene painters became out of date. 75
Although the movement did not last, it had 75
reflected its own time with profound understanding.

39. According to the passage, why did ordinary people in the 1930s identify with the art of the American Scene painters?
- A. The artists were primarily concerned with painting farm life.
 - B. People were given hope when they saw the paintings.
 - C. People wanted social and cultural change shown in their paintings.
 - D. The paintings suggested solutions to the problems of the period.
 - E. The paintings reflected the times in ways that were familiar to most viewers.

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40. Which of the following subjects would an Urban Realist painter be most likely to represent?
- F. factory workers going home from work
 - G. sunset on a beach
 - H. a self-portrait
 - J. a European city scene
 - K. an abstract painting in black and white
41. Hopper's paintings contrast with the work of the Urban Realist painters by
- A. portraying the beauty in America's past.
 - B. showing the ugliness of a city environment.
 - C. illustrating the move toward an international style.
 - D. revealing how dull urban life can include beauty.
 - E. presenting the trials of working people during the Depression.
42. How does the fourth paragraph contribute to the passage?
- F. It describes the end of the American Scene movement.
 - G. It honors Edward Hopper as a great American Scene painter.
 - H. It explains why Edward Hopper's work has been forgotten.
 - J. It contrasts American Scene with Urban Realist styles.
 - K. It presents an American Scene painter who focused on beauty.
43. The author used the phrase "without apology" (line 62) to explain that Hopper did not feel he needed to justify
- A. how he portrayed his subjects.
 - B. painting scenes from the past.
 - C. why *Nighthawks* became popular.
 - D. not joining the international art movement.
 - E. why he was an emotional painter.
44. What is the most likely reason that Regionalist art has retained some of its popularity while Urban Realist art has not?
- F. Regionalist art depicts modern life as well as life in the past, while Urban Realist art depicts only the past.
 - G. Regionalist art more accurately portrays the time in which it was painted than Urban Realist art does.
 - H. Regionalist art shows American life as people wish to remember it while Urban Realist art does not.
 - J. Regionalist art represents the positive side of urban life more than Urban Realist art does.
 - K. Regionalist art more accurately depicts how Americans overcame the effects of the Depression than Urban Realist art does.

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If you have ever watched someone fall on the ice, you've seen slipperiness at work. But have you wondered what makes ice slippery, or why skates or skis glide across ice so easily? The answer might seem obvious: ice is smooth. Yet smoothness in itself does not explain slipperiness. Imagine, for example, skating on a smooth surface of glass or sheet metal.

Surprisingly, scientists do not fully understand why ice is slippery. Past explanations of slipperiness have focused on friction and pressure. According to the friction theory, a skate blade rubs across the ice, causing friction. The friction produces heat, melting the ice and creating a slippery, microscopically thin layer of water for the skate to glide on. The friction theory, however, cannot explain why ice is slippery even when someone stands completely motionless, creating no friction.

The pressure theory claims that pressure from a skate blade melts the ice surface, creating a slippery layer of water. The water refreezes when the pressure is lifted. Science textbooks typically cite this explanation, but many scientists disagree, claiming that the pressure effect is not great enough to melt the ice. Nor can the pressure theory explain why someone wearing flat-bottomed shoes—which have a greater surface area than skate blades and thus exert less pressure per square inch—can glide across the ice or even go sprawling.

During the 1990s, another theory found acceptance: the thin top layer of ice is liquid, or “liquid-like,” regardless of friction or pressure. This notion was first proposed more than 150 years ago by physicist Michael Faraday. Faraday’s simple experiment illustrates this property: two ice cubes held against each other will fuse together. This happens, Faraday explained, because liquid on the cubes’ surfaces froze solid when the surfaces made contact.

Faraday’s hypothesis was overlooked, in part because scientists did not have the means to detect molecular structures.

However, technological advances during recent decades allow scientists to measure the thin layer on the surface of the ice. For example, in 1996, a chemist at Lawrence Berkeley Laboratory shot electrons at an ice surface and recorded how they rebounded. The data suggested that the ice surface remained “liquid-like,” even at temperatures far below freezing. Scientists speculate that water molecules on the ice surface are always in motion because there is nothing above them to hold them in place. The vibration creates a slippery layer of molecules. According to this interpretation of the Lawrence Berkeley Laboratory experiments, the molecules move only up and down; if they also moved side to side, they would constitute a true liquid. Thus it could be said that people are skating on wildly vibrating molecules!

The phenomenon of a slippery liquid-like surface is not limited to ice, although ice is the most common example. Lead crystals and even diamond crystals, made of carbon, also show this property under certain temperature and pressure conditions.

45. Which of the following best tells what this passage is about?
- A. why ice surfaces are liquid-like
 - B. how ice changes from a solid to a liquid
 - C. answers to the question of what makes ice slippery
 - D. the discoveries of Michael Faraday
 - E. the processes of freezing and melting

CONTINUE ON TO THE NEXT PAGE ►

46. What is the most likely reason that the author mentioned lead and diamond crystals in the last paragraph?
- F. to point out that solids other than ice have slippery surfaces
 - G. to suggest that ice, lead, and diamonds are composed of the same materials
 - H. to cast doubt on Faraday's theory of slipperiness
 - J. to suggest that scientists shoot electrons at lead and diamond surfaces
 - K. to suggest new uses for slippery substances
47. According to Faraday, why do two ice cubes fuse when held together?
- A. Friction causes the ice to melt and refreeze.
 - B. The pressure melts and refreezes the ice cubes.
 - C. The liquid layers on their surfaces freeze.
 - D. The vibrations of the molecules on their surfaces increase.
 - E. Their surface areas are perfectly smooth.
48. What is the most likely reason that the author mentioned the 1996 experiment at Lawrence Berkeley Laboratory?
- F. to provide evidence about the surface of ice
 - G. to illustrate the weaknesses of scientific technology
 - H. to show how Faraday tested his theory
 - J. to suggest that the ice surface was solid, not liquid
 - K. to explain why ice cubes freeze together
49. According to researchers at the Lawrence Berkeley Laboratory, why is the surface of ice "liquid-like" rather than "liquid"?
- A. because electrons rebound from the ice surface
 - B. because molecules on the ice surface vibrate only up and down
 - C. because the ice surface is wet
 - D. because the ice surface is slipperier than a liquid surface
 - E. because the temperature on the ice surface is slightly above freezing
50. According to the passage, which of the following undermines the friction theory of slipperiness?
- F. a person wearing flat-bottomed shoes gliding across the ice
 - G. two ice cubes fused together
 - H. electrons bouncing off an ice surface
 - J. a person trying to skate on a sheet of glass or sheet metal
 - K. a person slipping while standing immobile on ice

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PART 2 — MATHEMATICS

Suggested Time — 75 Minutes

50 QUESTIONS

GENERAL INSTRUCTIONS

Solve each problem. Select the **best** answer from the choices given. Mark the letter of your answer on the answer sheet. You can do your figuring in the test booklet or on paper provided by the proctor. **DO NOT MAKE ANY MARKS ON YOUR ANSWER SHEET OTHER THAN FILLING IN YOUR ANSWER CHOICES.**

IMPORTANT NOTES:

- (1) Formulas and definitions of mathematical terms and symbols are **not** provided.
- (2) Diagrams other than graphs are **not** necessarily drawn to scale. Do not assume any relationship in a diagram unless it is specifically stated or can be figured out from the information given.
- (3) Assume that a diagram is in one plane unless the problem specifically states that it is not.
- (4) Graphs are drawn to scale. Unless stated otherwise, you can assume relationships according to appearance. For example, (on a graph) lines that appear to be parallel can be assumed to be parallel; likewise for concurrent lines, straight lines, collinear points, right angles, etc.
- (5) Reduce all fractions to lowest terms.

51. $\frac{4.5}{0.1} \times 0.22 =$

- A. 0.99
- B. 1.99
- C. 9.9
- D. 99
- E. 990

52. If $\frac{4}{5}$ of P is 48, what is $\frac{3}{5}$ of P?

- F. 12
- G. 15
- H. 20
- J. 36
- K. 60

53. If $\frac{a}{b} = 2$ and $a = 8$, what is the value of $3b + a^2$?

- A. 28
- B. 70
- C. 76
- D. 88
- E. 112

54. Carlos is picking colored pencils from a large bin that contains only 480 red pencils, 240 green pencils, and 160 blue pencils. Without looking, Carlos pulls out 22 pencils. If the pencils were distributed randomly in the bin, how many pencils of each color is it most likely that he picked?

- F. 8 red, 7 green, 7 blue
- G. 10 red, 7 green, 5 blue
- H. 10 red, 8 green, 4 blue
- J. 11 red, 6 green, 5 blue
- K. 12 red, 6 green, 4 blue

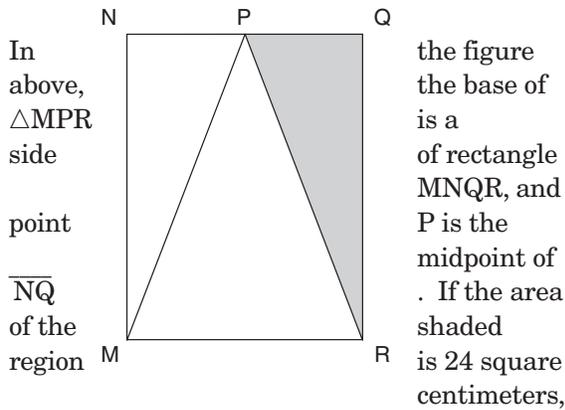
55. How many positive integers satisfy the inequality $x + 7 < 23$?

- A. 15
- B. 16
- C. 17
- D. 29
- E. 30

56. $3.99 \div 1.5 =$

- F. 0.266
- G. 0.267
- H. 2.0
- J. 2.66
- K. 2.67

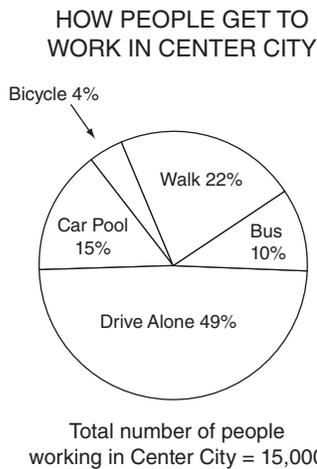
57.



what is the area of the region that is **not** shaded?

- A. 24 sq cm
- B. 48 sq cm
- C. 64 sq cm
- D. 72 sq cm
- E. 96 sq cm

58.



How many more people in Center City walk to work than ride their bicycles to work?

- F. 18
- G. 22
- H. 2,700
- J. 2,800
- K. 3,000

59. If x and y are positive integers such that $0.75 = \frac{x}{y}$, what is the **least** possible value for x ?

- A. 1
- B. 3
- C. 4
- D. 25
- E. 75

60. $|190 - 210| + |19 - 21| + x = 100$

In the equation above, what is the value of x ?

- F. 78
- G. 88
- H. 100
- J. 122
- K. 123

61. Ms. Grant's car gets between 20 and 22 miles per gallon, inclusive. The gasoline she uses costs between \$4.20 and \$4.50 per gallon, inclusive. What is the **greatest** amount Ms. Grant will spend on gasoline to drive her car 200 miles?

- A. \$37.27
- B. \$40.90
- C. \$42.00
- D. \$45.00
- E. \$99.00

62. The set P consists of all prime numbers greater than 6 and less than 36. What is the median of the numbers in P ?

- F. 17
- G. 17.75
- H. 18
- J. 18.75
- K. 19

63. What is the greatest common factor of 2,205 and 3,675?

- A. 147
- B. 245
- C. 441
- D. 735
- E. 1,225

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64.

$$\begin{array}{r}
 -2 \\
 4 \\
 -6 \\
 8 \\
 \cdot \\
 \cdot \\
 \cdot \\
 -22 \\
 + 24 \\
 \hline
 \end{array}$$

If the missing terms in the problem above were filled in according to the pattern, what would be the sum of all the terms?

- F. -6
- G. 2
- H. 6
- J. 10
- K. 12

65. SONGS PLAYED DURING ONE HOUR

Number of Songs	Number of Radio Stations
14	8
15	4
16	4
17	5
18	9

The table above shows the number of songs played during a specific hour by 30 different radio stations. What is the mean number of songs played during that hour by these stations?

- A. 6
- B. 8
- C. 16.1
- D. 16.5
- E. 18

66. The fuel mix for a small engine contains only 2 ingredients: gasoline and oil. If the mix requires 5 ounces of gasoline for every 6 ounces of oil, how many ounces of gasoline are needed to make 33 ounces of fuel mix?

- F. 3
- G. 6
- H. 15
- J. $27\frac{1}{2}$
- K. 165

67. In the set of consecutive integers from 12 to 30, inclusive, there are 4 integers that are multiples of both 2 and 3. How many integers in the set are multiples of **neither** 2 nor 3?

- A. 2
- B. 5
- C. 6
- D. 13
- E. 15

68. A pitcher contained 32 ounces of orange juice and 12 ounces of grapefruit juice. More grapefruit juice was added to the pitcher until grapefruit juice represented $\frac{1}{3}$ of the pitcher's contents. How many ounces of grapefruit juice were added?

- F. 2 oz
- G. 4 oz
- H. 8 oz
- J. 16 oz
- K. 44 oz

69. A roofing contractor uses shingles at a rate of 3 bundles for each 96 square feet of roof covered. At this rate, how many bundles will he need to cover a roof that is 416 square feet?

- A. 5
- B. 12
- C. 13
- D. 14
- E. 15

70. How many ways can the letters in the word RAIN be arranged horizontally so that the vowels (A and I) are always immediately next to each other (either AI or IA)?

- F. 6
- G. 8
- H. 12
- J. 16
- K. 24

71.

Item	Quantity Purchased	Price Per Item
Rain Coat	1	\$102.00
Slacks	2	\$60.00
Shirt	2	\$35.00

One 6% tax on \$75 and tax on clothing items priced under \$75. What is the total tax on the items in the table above?

state has a sales tax clothing items priced at or higher, no sales tax on clothing items priced under \$75.

- A. \$6.12
- B. \$6.72
- C. \$13.32
- D. \$17.00
- E. \$203.12

72. There are 45 eighth graders and 20 seventh graders in a school club. The president of this club wants 40% of the club's members to be seventh graders. How many **more** seventh graders must join the club in order to meet the president's wishes? (Assume that the number of eighth graders remains the same.)

- F. 6
- G. 7
- H. 8
- J. 10
- K. 27

73. If R, S, and T are integers and R + S and T - S are both odd numbers, which of the following must be an **even** number?

- A. R + T
- B. S + T
- C. R
- D. S
- E. T

74. For what value of z is $z - \frac{1}{3}z = 12$?

- F. -18
- G. 4
- H. 8
- J. 12
- K. 18

75.

Regular Price	\$2.49
Discount	-\$0.60
Sale Price	\$1.89
6% Tax	\$0.15
Total	\$2.04

Nikolai bought a packet of pens. His receipt is shown above. Assume that sales tax is rounded to the nearest cent. If the 6% sales tax had been computed on the sale price instead of on the regular price, how much lower would the tax have been?

- A. \$0.01
- B. \$0.02
- C. \$0.03
- D. \$0.04
- E. \$0.36

76. The regular price of a 12-ounce bag of candy is \$2.90. Lily has a coupon for 30% off one of these bags. What is the price per ounce (to the nearest cent) that Lily will pay if she uses the coupon?

- F. \$0.07
- G. \$0.15
- H. \$0.17
- J. \$0.22
- K. \$0.24

77. On a particular vehicle, the front tire makes three revolutions for every one revolution the back tire makes. How many times larger is the radius of the back tire than the radius of the front tire?

- A. $\frac{1}{3}$
- B. 3
- C. $\frac{3}{2}\pi$
- D. 3π
- E. 9

78. PEOPLE PER VEHICLE AT CHECKPOINT

Number of People in the Vehicle	Percent of Vehicles
1	40%
2	35%
3	15%
4	7%
5 or more	3%

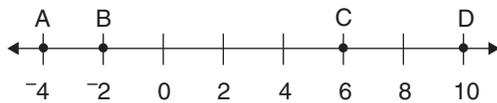
A researcher recorded the number of people in each vehicle that passed through a checkpoint. The table above shows the percent distribution for the 420 vehicles that passed the checkpoint yesterday morning. How many of the 420 vehicles contained **at least** 3 people?

- F. 42
- G. 63
- H. 105
- J. 315
- K. 378

79. Jack and Roberto were assigned to guard a tower. Each was to watch for 5 hours, then rest 5 hours while the other watched. If Roberto began his first watch at 6:00 p.m., at what time will he begin his third watch?

- A. 11:00 p.m.
- B. 4:00 a.m.
- C. 9:00 a.m.
- D. 7:00 p.m.
- E. 2:00 p.m.

80.



On the number line above, point E (not shown) is the midpoint of \overline{AC} and point F (not shown) is the midpoint of \overline{BD} . What is the length of \overline{EF} ?

- F. 1 unit
- G. 2 units
- H. 2.5 units
- J. 3 units
- K. 11 units

81. A video game originally priced at \$44.50 was on sale for 10% off. Julian received a 20% employee discount applied to the sale price. How much did Julian pay for the video game? (Assume that there is no tax.)

- A. \$31.15
- B. \$32.04
- C. \$35.60
- D. \$40.05
- E. \$43.61

82. If $r = 3q + 2$ and $q = \frac{1}{3^n}$ for $n = 1, 2,$ or $3,$ what is the **least** possible value of r ?

- F. 1
- G. $2\frac{1}{9}$
- H. $2\frac{1}{3}$
- J. 3
- K. 5

83. $|(-6) - (-5) + 4| - |3 - 11| =$

- A. -7
- B. -5
- C. -1
- D. 1
- E. 11

84. There are 1,000 cubic centimeters in 1 liter and 1,000 cubic millimeters in 1 milliliter. How many cubic millimeters are there in 1,000 cubic centimeters?

- F. 1,000
- G. 10,000
- H. 100,000
- J. 1,000,000
- K. 1,000,000,000

CONTINUE ON TO THE NEXT PAGE ►

85. A radio station plays Samantha's favorite song 6 times each day at random times between 8:00 a.m. and 5:00 p.m. The song is 5 minutes long. If Samantha turns on the radio at a random time between 8:00 a.m. and 5:00 p.m., what is the probability that her favorite song will be playing at that time?

- A. $\frac{1}{30}$
- B. $\frac{1}{18}$
- C. $\frac{1}{6}$
- D. $\frac{1}{5}$
- E. $\frac{1}{3}$

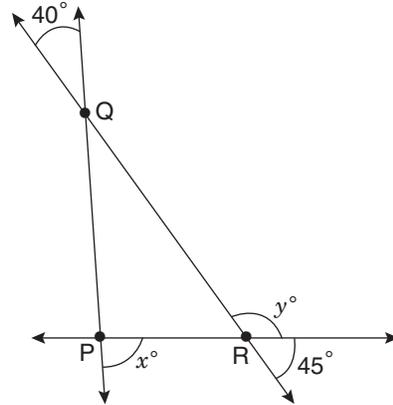
86. Set R contains all integers from 10 to 125, inclusive, and Set T contains all integers from 82 to 174, inclusive. How many integers are included in R, but **not** in T?

- F. 23
- G. 48
- H. 49
- J. 71
- K. 72

87. Ryan must read 150 pages for school tomorrow. It took him 30 minutes to read the first 20 of the assigned pages. At this rate, how much **additional** time will it take him to finish the reading?

- A. $1\frac{2}{3}$ hr
- B. $2\frac{1}{6}$ hr
- C. $3\frac{1}{4}$ hr
- D. $3\frac{3}{4}$ hr
- E. $7\frac{1}{2}$ hr

88.



The figure above shows three intersecting straight lines. What is the value of $y - x$?

- F. 40
- G. 50
- H. 85
- J. 95
- K. 135

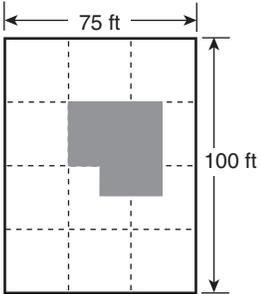
89. Joe began to increase the speed of his car at 2:00 p.m. Since that time, the speed of Joe's car has been steadily increasing by $1\frac{1}{2}$ miles per hour for each half minute that has passed. If the car is now traveling $65\frac{1}{2}$ miles per hour, for how many minutes has the car been exceeding the speed limit of 55 miles per hour?

- A. $3\frac{1}{3}$ min
- B. $3\frac{1}{2}$ min
- C. $4\frac{1}{2}$ min
- D. 5 min
- E. 7 min

CONTINUE ON TO THE NEXT PAGE ►

90. If x , y , and z are numbers such that $xy + xz = 100$, what is the value of $\frac{x}{5}(3y + 3z) + 10$?
- F. $60 + 2x$
 G. 62
 H. 70
 J. 130
 K. $130 + 2x$

91. Let $N = -(|-3| - |-8| + |-4|)$.
 What is the value of $-|N|$?
- A. -9
 B. -4
 C. -1
 D. 1
 E. 9

92. The drawing above represents a rectangular lot containing a building, the shaded region. The dashed lines divide the lot into twelve equal-sized squares. If the unshaded portion of the lot is to be paved, about how many square feet will be paved?
- 
- F. 4,000 sq ft
 G. 5,000 sq ft
 H. 6,000 sq ft
 J. 7,000 sq ft
 K. 8,000 sq ft

93. If x can be any integer, what is the greatest possible value of the expression $1 - x^2$?
- A. -1
 B. 0
 C. 1
 D. 2
 E. Infinity

94. A recent survey asked students what pets they have. Based on the results, the following statements are all true:
- 23 students have dogs.
 20 students have cats.
 3 students have both dogs and cats.
 5 students have no cats or dogs.
- How many students were surveyed?
- F. 40
 G. 42
 H. 45
 J. 46
 K. 51

95. Ang has x dollars in his savings account, and Julia has y dollars in her savings account. Ang gives Julia $\frac{1}{3}$ of the money in his savings account, which Julia deposits into her savings account. Julia then spends $\frac{1}{4}$ of the total in her savings account. Express the amount of money Julia spent in terms of x and y .
- A. $\frac{y}{4} + \frac{x}{12}$
 B. $\frac{y}{4} + \frac{x}{3}$
 C. $\frac{y}{4} + \frac{x}{7}$
 D. $\frac{3y}{4} + \frac{x}{4}$
 E. $\frac{3y}{4} + \frac{x}{3}$

96. Nam worked on a job for 10 days. On each of the last 2 days, he worked 2 hours more than the mean number of hours he worked per day during the first 8 days. If he worked 69 hours in all, how many hours did he work during the last 2 days together?
- F. 8.5
 G. 10.5
 H. 13.0
 J. 15.0
 K. 17.0

97.

PRICES FOR AD SPACE

Space	Price
$\frac{1}{4}$ page	\$200
$\frac{1}{2}$ page	\$350
full page	\$600

The table above shows prices for newspaper advertising. A store purchased quarter pages, half pages, and full pages of space in equal numbers for a total of \$11,500. What is the total amount of page space the store purchased?

- A. $1\frac{3}{4}$ pages
- B. 10 pages
- C. $16\frac{1}{2}$ pages
- D. $17\frac{1}{4}$ pages
- E. $17\frac{1}{2}$ pages

98. One week the price of gasoline dropped by \$0.05 per gallon. Madison's car travels 27 miles each way to work, and her car travels 30 miles on each gallon of gasoline. What were her total savings, to the nearest cent, over the 5-day work week?

- F. \$0.23
- G. \$0.25
- H. \$0.30
- J. \$0.45
- K. \$0.50

99. A rectangular floor is 12 feet wide and 16 feet long. It must be covered with square tiles that are 8 inches on each side. Assume there is no space between adjacent tiles. If the tiles cost \$8 each, how much will it cost to buy the tiles needed to cover the floor?

- A. \$24
- B. \$64
- C. \$192
- D. \$2,304
- E. \$3,456

100.

{1, 2, 3, 4, 5, 6}

Company X wants to assign each employee a 3-digit ID number formed from digits in the set shown above. No digit may appear more than once in an ID number, and no two employees may be assigned the same ID number. What is the greatest total number of possible different ID numbers?

- F. 20
- G. 120
- H. 180
- J. 216
- K. 720

THIS IS THE END OF THE TEST. IF TIME REMAINS, YOU MAY CHECK YOUR ANSWERS TO PART 2 AND PART 1. BE SURE THAT THERE ARE NO STRAY MARKS, PARTIALLY FILLED ANSWER CIRCLES, OR INCOMPLETE ERASURES ON YOUR ANSWER SHEET. ■



SCRAMBLED PARAGRAPHS

Paragraph 1 (TQURS)

The given sentence says that Aztec culture and traditions are described in a document called the Codex Mendoza. T is next; it is an example of one of the Aztec traditions, naming a newborn child. The pronoun “it” in T refers to the Codex in the given sentence. Either of two sentences, Q or U, could logically follow, explaining how baby boys and girls were given names. Q, which describes how boys were named, logically follows T. U, describing how girls were named, contains the phrase “on the other hand,” implying that it follows a sentence with contrasting information. The contrasting information is naming boys (vs. naming girls), so U must follow Q. R is next, using the word “also” to introduce another Aztec tradition, the placement of implements in an infant’s hands. S follows R by giving examples of the implements given to girls and boys.

Paragraph 2 (SRUQT)

The opening sentence introduces a new term, the “honey hunters” of Nepal, and the paragraph goes on to describe what honey hunters do. Honeybees, the source of honey, are mentioned in S, which also refers to Nepalese mountainsides, a link to the opening sentence. The job of a honey hunter is explained in R and continued in U. “This entire dangerous practice” in Q refers back to the procedures described in R and U. The hunter is stung repeatedly (Q), and T continues the description of the stinging that the hunters endure.

Paragraph 3 (QSRUT)

According to the given sentence, the jingle dress dance is popular at Native American events. Q is next, describing the steps of the dance, which cause the decorations on the dress to jingle (S). Sentence R describes what made the dresses “jingle” in the past—shells striking each other. “The modern jingle-dress” in U contrasts past and present dresses, explaining that nowadays shells have been replaced by the lids of metal cans. T contrasts the sounds of the lids and shells.

Paragraph 4 (USTRQ)

The opening sentence is about topographical maps. U explains how they differ from other maps and defines the term “contour line.” S supplies another function of contour lines—to indicate the slope of the land. T explains in more detail how contour lines indicate slope. The last two sentences are about the depiction of streams and other waterways. R says that blue lines represent waterways. Q explains how the course of a waterway can be revealed by V-shaped contour lines.

Paragraph 5 (TRUQS)

Either T or R could follow the given sentence. Try both possibilities and compare the results. When T is placed after the given sentence, it continues the reference made to Vulcan in the given sentence, and it provides a definition of a volcano early in the paragraph. R provides a transition from the discussion of volcanoes in general to a focus on volcanoes in the United States, and Kilauea in particular. U follows R with its reference to “that volcano,” referring to Kilauea, and describes its activity. U also names Hawaii Volcanoes National Park. “In the same park” (in Q) logically follows that reference. Q also mentions a second volcano, Mauna Loa. S must follow Q because it refers to two volcanoes (“Both of these . . .”). TRUQS creates a well-organized, cohesive paragraph, and it is the correct answer.

RUQST was a popular incorrect answer. R might be thought to follow the opening sentence because it continues the discussion of volcanoes, including Kilauea. The logic and flow of thought that formed the sequence RUQS remain the same, but the final sentence, T, ends the paragraph on an awkward note. The definition of the paragraph’s topic (volcanoes) appears after, not before, further discussion of the topic, and four sentences separate the references to Vulcan. RUQST is neither well-organized nor cohesive.

LOGICAL REASONING

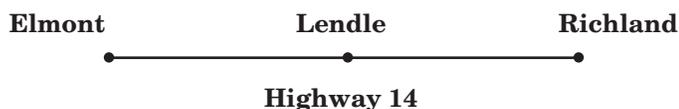
11. (C) The first sentence implies that all the members of the basketball team are 5 feet 11 inches or taller. Cheng’s height is 6 feet 2 inches. The question does not state whether Cheng is on the basketball team. Options A, B, D, and E might be true, but there is not enough information to determine that they must be true. Only Option C must be true. At least one member of the basketball team (the shortest member, who is 5 feet 11 inches) is shorter than Cheng.

12. (K) The activity of Javon’s three pets can be represented like this:

Time	Hamster Active?	Dog Active?	Cat Active?
Night	Yes	No	Alternately sleeps for an hour and active for an hour.
Day	No	Yes	Alternately sleeps for an hour and active for an hour.

Options F and G are not true: there will be times when the hamster and the cat—or the dog and the cat—will be active at the same time. H can be ruled out because at least one pet is active at any given time. J is contradicted by the information in the question. Option K is always true. Of the three pets, a maximum of two will be active at any one time.

13. (D) According to statement 1, the towns of Elmont, Lendle, and Richland are connected by Highway 14. Draw a diagram to show this relationship.

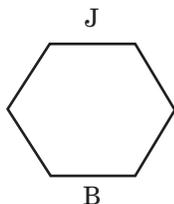


We know that Highway 14 is closed from Elmont to Richland. This stretch of highway includes the town of Lendle.

Statement 2 says that the town of Mopley is connected to Lendle, but does not specify how it is connected. Mopley could be connected to Lendle by another road (not named), or it could be somewhere on Highway 14.

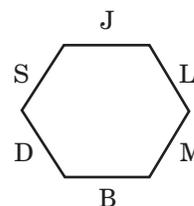
Not enough information is provided to determine whether Mopley is flooded, or whether Mopley can be reached directly from Elmont, ruling out A and E. Highway 14 connecting Elmont and Richland is flooded, but we cannot determine whether the towns themselves are flooded, ruling out B and C. Only Option D is valid. Highway 14 between Elmont and Richland is closed because of flooding, so no one can drive to Lendle on Highway 14. (Notice that the location of Mopley is not relevant to the correct answer.)

14. (G) Draw a diagram of the six-sided table. There is no definite information about who sits at a particular position—only about the relationship between where people sit—but the correct answer only requires understanding the relationships. Choose a position at the table to start, and use an initial to represent each person. According to Condition 1, Jorge sits directly across from Bree.



Look for another condition that relates to either Jorge or Bree. Condition 4 places Bree immediately next to

Darius, on his right, and Condition 3 states that Darius sits directly across from Lucy. According to Condition 5, Susana is immediately next to Jorge. Since Lucy is already on one side of Jorge, Susana must be on the other side. That leaves Michael in the remaining position, opposite Susana. All six people are now seated relative to one another.



Because the question states that the people at the table are facing inward, you know that the person sitting on Michael's immediate left is Bree (Option G).

15. (B) Draw a grid to illustrate who won each prize. An X indicates that a person did not receive a prize. According to Statement 2, Michael did not win the computer.

	Trip	Television	Computer
Luis			
Michael			X
Nadia			

The question asks which option makes it possible to determine who won each prize, that is, to fill in the rest of the grid. For each option, mark the information on the grid. Are you able to determine who won each prize? If not, erase the marks and evaluate the next option. For example, mark the information for Option A, and fill in X's wherever you can.

	Trip	Television	Computer
Luis	X		
Michael	Yes	X	X
Nadia	X		

We can't figure out who won the television set and the computer, so option A cannot be correct. Only Option B allows us to determine who won each prize.

	Trip	Television	Computer
Luis	X	Yes	X
Michael	Yes	X	X
Nadia	X	X	Yes

16. (H) This question contains two conditional sentences. You can put them together like this: When Soon Bae listens to music, she is also dancing and singing.



The arrows indicate the direction of the condition. Notice that the arrows point in only one direction, ruling out Option F. Music might not be the only thing that causes Soon Bae to dance and sing. Other factors, beside music, might lead to dancing and singing. Thus Options G, J, and K are not valid. The only valid conclusion is Option H.

17. (A) The question gives the names of four new students and four older student partners. Your task is to match them up correctly. Draw a table to show the four student pairs. Condition 1 says that Sandro and Whitney are paired. Edgar, an older student, is not paired with Gloria or Bai (Condition 3), so he must be paired with Henry.

New students	Bai	Gloria	Sandro	Henry
Older student partners			Whitney	Edgar

Bai is not paired with Rakim (Condition 2), so Rakim must be paired with Gloria, leaving Bai paired with Paola, which is Option A. To answer this question correctly, you must keep track of which students are new and which are older. Otherwise, you might incorrectly pair Paola with Rakim (Option E).

18. (G) Draw a diagram like the one below. Eight years are shown because eight is the largest option. The question states that Jack played only the violin the first year. Under Year 1, put an X to represent Jack’s instrument during the first year. The question does not state the order in which Jack played each instrument. Since he started with the violin, and played violin for two years, add an X under the second year as well.

Year	1	2	3	4	5	6	7	8
Violin	X	X						
Cello								
Bass								

Jack played the cello and the bass for three years each, and he never played more than two instruments during the same year. One possibility is that he played the cello during years, 2, 3, and 4, as marked below. Jack could not have started playing the bass until year 3. After “Bass,” place an X under years 3, 4, and 5.

Year	1	2	3	4	5	6	7	8
Violin	X	X						
Cello		X	X	X				
Bass			X	X	X			

This is one possible arrangement, and it requires five years. All other possibilities require at least five years. Option G is correct.

19. and 20. Read the directions carefully. The letters in a sentence may or may not appear in the same order as the words in that sentence. For example, in the first sentence, the first letter (L) may or may not represent the first word (Michelle). You need not find out what every letter represents in the code.

19. (C) The letter Q appears only in the first sentence. Thus, the word represented by Q must appear only in the first sentence. That word is “Michelle” (Option C).

20. (K) The word “paints” appears only in the first and third sentences, so start by identifying the letters that appear in both the first and third sentences—L, P, and R. However, the letter R appears in all four sentences and thus cannot represent the word “paints.” Either L or P could represent “paints,” but there is no way to figure out which is correct. The answer cannot be determined (Option K).

READING

Debates

21. (D) Option A is too broad—the passage focuses on a specific event, not on entire careers. Option B is implied in the second-to-last paragraph, but is not specifically discussed. Option C is a detail, not a main point. The best summary is Option D, which includes considerations prior to the debates, the actual event, and some of the consequences. Option E is an important detail, but not the main idea.

22. (H) The question asks you to use the information given in the passage to predict what would have happened if the debates had not taken place on television (for example, if they had occurred only on radio or in printed form). To answer the question, review the information given about each candidate before the debate. Nixon was ahead in the polls, an experienced public speaker, and had served as vice president (lines

15-20). Kennedy had been criticized for his relative youth and inexperience (lines 22-25). Without the televised debate, if events had followed their course, it is more likely that Nixon, not Kennedy, would have won the election, which is Option H. This line of reasoning rules out Options F and G. Option J is contradicted by lines 67-68. Nixon would have no reason to consider his on-screen performance, which rules out Option K.

23. (D) The answer to this question can be found in the fourth paragraph. Lines 58-60 state that “Some feared that the better TV performer was bound to come across as being the better candidate.” This concern is best reflected in Option D. Options A, C, and E are not mentioned in the passage as possible concerns. Option B is ruled out by the “calm and careful” way that both candidates debated the issues (lines 32-34).

24. (H) Kennedy’s benefit is summarized in lines 50-53, especially his “charm, poise, and confident manner.” These qualities are summarized by Option H: “He appeared to have attractive personal characteristics.” Option F is contradicted by lines 32-34, which state that both candidates dealt calmly and carefully with the issues. The debate centered on domestic issues, ruling out Option G. Options J and K describe Nixon, not Kennedy.

25. (E) Reread the last sentence of the passage, and then read each option before choosing your answer. The first three options are true statements, but they do not say anything about the effect of televising the event. The passage does not supply any information to support Option D. Option E is correct. Nixon’s greater experience (lines 15-20) would have been more apparent to radio listeners who were not distracted by his poor television appearance.

26. (G) The answer is given in lines 7-9, which is summarized in Option G. Option F is a true statement, but it does not explain why people not interested in politics would watch the debates. Kennedy’s attractive appearance is not mentioned in the passage, ruling out Option H. Option J does not make sense as a reason for watching the debates, and the passage says that Vice President Nixon was ahead in the polls, which rules out Option K.

Bats

27. (B) Option A cannot be correct because the passage discusses animal species, not plants, that are becoming endangered. Option C is an important detail, but it is not the main idea of the passage. Option D is contradicted by lines 4-7. Option E is also important, but the passage is about much more than the pollination of tropical plants. Option B is best. It incorporates the notion of bat stereotypes contrasted with the advantages that bats provide to plants and animals, including humans.

28. (H) “Ugliness is only skin deep” (line 70) is a play on the expression “Beauty is only skin deep,” which means that an attractive outward appearance does not necessarily indicate inward beauty. The intended meaning—that an ugly outward appearance does not always imply evil or harmfulness—is Option H. None of the other options correctly apply to this “new twist to an old adage.”

29. (D) The far-reaching impact of a keystone species is described in the third paragraph. The flying fox, a keystone in the rain forest, pollinates and distributes seeds, and thus helps provide food and shelter for many other plants and animals in its ecosystem. Rain forests in turn help to maintain a balanced global atmosphere for living creatures everywhere. Option D best summarizes the far-reaching impact of a keystone species. The passage says that brown bats help to prevent disease (lines 8-9), but the keystone species, flying foxes, are not described in that way, ruling out Option A. The brown bat’s main food source is mosquitos, but bats are not mentioned as food sources for other animals, so Option B is not correct. Lines 23-27 describe how flying foxes help to pollinate plants, but the passage does not claim that they pollinate every plant species. The rain forests’ lush vegetation, not flying foxes, replenishes the oxygen in the global atmosphere (lines 41-43), making Option E incorrect.

30. (J) The question asks for the most immediate result that would occur before other, more distant consequences took place. Read every option before deciding which describes the most immediate result. Options F and H are possible, but they are long-term, not immediate, results. Options G and K are not supported by the passage. Option J is the only immediate result.

31. (C) The passage discusses bats' consumption of cultivated fruit in lines 46-50. Bats in the wild feed on wild (uncultivated) fruit; they eat cultivated fruit only when wild fruit cannot be found due to reduced habitat for wild fruit trees, which is Option C. Option A is contradicted by the passage. Options B, D, and E are not supported.

32. (F) The iroko tree is mentioned in lines 20-23 as a valuable tree that depends entirely on flying foxes for pollination. The previous sentence stated the importance of flying foxes for pollination of plants such as avocados and date trees. Both sentences are about the importance of flying foxes for the pollination of useful plants, which is Option F. Option G is not mentioned. Options H, J, and K do not explain why the author mentioned the iroko tree.

Wind Energy

33. (B) Option A is mentioned only in the first paragraph, and it is not the main idea. Option B best summarizes the passage: it describes how wind energy has been used, from ancient sailboats to medieval windmills to modern turbines. Option C is a detail. Options D and E are important points, but neither is the main idea.

34. (F) The first known windmills originated in Persia (lines 15-17), which is Option F. The other options (North America, Europe, China, and Holland) are mentioned in the development of wind power around the world, but the first known windmills were not built there.

35. (D) The future use of wind energy is discussed in the last paragraph. Options A, C, and E are never mentioned. Option D best conveys the author's optimism that wind farms—"efficient, clean, and fairly inexpensive to operate" (lines 70-71)—will be a major source of electricity in the future. Option B is contradicted by the passage.

36. (K) You are asked which option best illustrates the development of wind energy. In the passage, the author followed the history of wind energy from old-fashioned water-pumping windmills (lines 24-26) to thin-bladed windmills (lines 55-58) to the development of wind farms (lines 67-70). Options F, G, and J are contradicted by the passage. Option H is not supported by the passage. Option K implies that the development from simpler into more complex machines illustrates human creativity, and it is the best answer.

37. (D) The need for windmills on farms before the 1950s is discussed in lines 53-58. The next two sentences explain that the need decreased in the 1950s because most homes were connected to an electric utility and no longer depended on windmills for electrical power (Option D). Options A and C are contradicted by the passage. Option B incorrectly combines information in the passage, and Option E overlooks the fact that wind turbines are windmills, and thus did not replace windmills.

38. (G) The country of Holland (lines 32-36) used windmills to pump seawater away from bogs and reclaim large areas of land (Option G). Dutch shipbuilding is not mentioned, ruling out Option F. Although Holland was famous for its windmills, their fame did not aid the country's developments, eliminating Option H. Options J and K are contradicted by the passage.

American Scene

39. (E) The correct answer is found in lines 67-70; the general public identified with American Scene art because the paintings presented common images and mirrored the lives of many people, which is Option E. The other options are contradicted by information in the passage. Option B may look appealing, but some American Scene artists, the Urban Realists, painted scenes of loneliness and anonymity, not something to give people hope.

40. (F) According to the third paragraph, Urban Realists painted the drab realities of the contemporary environment. The subject that best matches that description is Option F. None of the other options fit the description of Urban Realist art. Option J, a European city scene, is incorrect because, while it is an urban scene, it is not American.

41. (D) The word "contrast" in the question means finding how two things differ from one another. Lines 52-55 provide the correct answer. Edward Hopper, the painter of *Nighthawks*, portrayed dingy urban streets, as did the Urban Realists. Unlike the Urban Realists, however, he often found beauty in the midst of a city's drab surroundings (lines 54-55). Option A is about the past, not the present era depicted in the painting. Options B and E do not provide a contrast. The international style, described in the last paragraph, had not yet developed, ruling out Option C.

42. (G) The fourth paragraph is about Edward Hopper. It follows the paragraphs about the Regionalists and the Urban Realists and presents Hopper as an American Scene painter who does not fit into either of those groups. Hopper's famous painting *Nighthawks* puts him among the great American Scene painters, which is Option G. The end of the American Scene movement is described in the fifth paragraph, not the fourth, ruling out Option F. Option H is contradicted by the information in the passage, and Option J incorrectly contrasts American Scene and Urban Realist styles. Option K looks appealing but is incorrect because, while Hopper sometimes found beauty in drab surroundings, he did not focus on beauty.

43. (A) The phrase “without apology” means without explanation or justification. The phrase refers to what Hopper saw (lines 61-62) and thus chose for his subjects, which is Option A. Hopper was not interested in the past, ruling out Option B. Option C might look attractive because Hopper's painting was well-known, but “without apology” doesn't relate to its popularity. Options D and E are not mentioned.

44. (H) Regionalist art expressed the traditions and interests of many Americans of the time (lines 65-67) and is still treasured by many as a fond memory of times gone by (lines 31-33). Urban Realist artists, on the other hand, painted drab urban scenes (lines 35-37), not the basis for fond memories. Regionalist art, with its pleasant and familiar subjects, showed American life as people wished to remember it (Option H). It did not portray modern life (Option F) or the time in which it was painted, the Depression (Option G). Regionalist artists painted rural and small-town scenes, not city life (Option J). The passage does not explain how Americans overcame the effects of the Depression (Option K).

Ice

45. (C) The passage begins by asking why ice is slippery (lines 3-5) and reviews several theories of slipperiness: smoothness, friction, pressure, and Faraday's theory. Option C, “answers to the question of what makes ice slippery,” summarizes the main idea of the passage. Option A is not discussed in the first half of the passage, and Options B, D, and E are details, not the main idea.

46. (F) Read the entire last paragraph. The writer says, “a slippery liquid-like surface is not limited to ice,” then mentions lead and diamond crystals. The most

likely reason that the author mentions these crystals is to illustrate that solids other than ice have slippery surfaces, which is Option F. Option G cannot be correct because these crystals are not made of frozen water. The properties of lead and diamond crystals are not related to Faraday's theory, ruling out Option H. Options J and K are not mentioned in the passage.

47. (C) Faraday's experiment is described in the fourth paragraph. The liquid on the ice cubes' surfaces froze solid when the surfaces made contact (lines 45-46). This information is restated in the correct answer, Option C. Option A is incorrect because Faraday's explanation does not include the concept of friction. Options B and D are not supported by the passage. The “smoothness” explanation of slipperiness (Option E) was ruled out in the first paragraph.

48. (F) The experiment at Lawrence Berkeley Laboratory is mentioned in lines 52-58. The data from this experiment suggested that the ice surface remained “liquid-like,” creating a slippery layer of molecules on the ice surface. This conclusion is best summarized by Option F. Option G is wrong because the experiment illustrated the power, not the weaknesses, of scientific technology. Option H is impossible: the experiment was conducted long after Faraday's lifetime. Option J contradicts the scientists' conclusion, and Option K refers to Faraday's experiment, not the Lawrence Berkeley Lab experiment.

49. (B) The distinction between the two terms is made in lines 65-68. The surface of ice is liquid-like because the surface molecules move only up and down, which is Option B. Option A describes the result of the experiment, not the ice surface itself. Option C can be ruled out because “wet” and “liquid” are synonyms. Option D cannot be evaluated—we do not know from the passage which is slipperier. Option E is contradicted by the passage.

50. (K) The friction theory of slipperiness is explained in the second paragraph, which concluded that the theory cannot explain why ice is slippery for someone who stands motionless, creating no friction. Something that a theory cannot explain can be said to weaken, or undermine, the theory. Option K, “a person slipping while standing immobile on ice,” is the best answer. Option F undermines the pressure theory, not the friction theory, while Option J undermines the “smoothness” explanation. Options G and H neither support nor undermine the friction theory.



51. (C) $\frac{4.5}{0.1} \times 0.22 = 45 \times 0.22 = 9.9$

52. (J) $\frac{4}{5}P = 48$

$$P = \left(\frac{5}{4}\right)(48) = 60$$

$$\frac{3}{5}(60) = 36$$

53. (C) First, use the given information to calculate the value of b :

$$\frac{a}{b} = 2 \quad \frac{8}{b} = 2 \quad 8 = 2b \quad 4 = b$$

Now, calculate $3b + a^2$ by substituting $a = 8$ and $b = 4$:

$$3(4) + (8)^2 = 12 + 64 = 76$$

54. (K) First, find the ratio of red to green to blue pencils. Then reduce it to its lowest form by dividing by the greatest common divisor:

$$480:240:160 = 6:3:2$$

Since $6 + 3 + 2 = 11$, multiply each value by 2 (because $2 \times 11 = 22$) to get the number of each color pencil in a set of 22 randomly chosen pencils: 12 red, 6 green, 4 blue

55. (A) First, simplify the inequality:

$$x + 7 < 23$$

$$x < 16$$

The positive integers that satisfy the inequality are 1, 2, 3, ..., 14, 15. (We cannot include 16 because x must be **less than** 16.) 15 positive integers satisfy this inequality.

56. (J) Multiply the numerator and denominator by 100 to eliminate the decimals. Then divide the answer by 100 to get the answer in decimal form:

$$3.99 \div 1.5 =$$

$$\left(\frac{3.99}{1.5}\right)\left(\frac{100}{100}\right) = \frac{399}{150} = \frac{133}{50} = \frac{266}{100} = 2.66$$

Note: You could also solve this equation using long-division.

57. (D) The area of triangle MPR is equal to half the area of rectangle MNQP. So, the area of MPR is also equal to the area of triangles MNP + RPQ. Point P is the midpoint of side \overline{NQ} , so triangle MNP is equal in area to triangle RQP. Thus, triangle MPR = 2(RQP). The area of the unshaded region is the sum of the areas of triangles MPR and MNP.

$$\text{MNP} = \text{RQP} = 24 \text{ sq cm}$$

$$\text{MPQ} = 2(\text{RQP}) = 48 \text{ sq cm}$$

Thus, the area of the unshaded region is $24 + 48 = 72$ sq cm

58. (H) According to the chart, 22% of people walk to work and 4% ride a bicycle. Subtract to find the percentage of how many more people walk than bicycle:

$$22\% - 4\% = 18\%$$

To find the exact number of people, multiply 18% (0.18) by the number of people working in Center City (15,000):

$$15,000 \cdot 0.18 = 2,700$$

59. (B) Write 0.75 as a fraction in lowest terms to find the least value of x : $0.75 = \frac{75}{100} = \frac{3}{4}$

So, the least possible positive integer value of $x = 3$.

60. (F) $|190 - 210| + |19 - 21| + x = 100$

$$|-20| + |-2| + x = 100$$

$$20 + 2 + x = 100$$

$$x = 78$$

61. (D) The car gets between 20 and 22 miles per gallon. Ms. Grant would use the most gas if the car gets only 20 miles per gallon, so use this value. Then, use \$4.50 (the highest possible price per gallon) to determine the greatest amount of money she will spend:

$$200 \text{ miles} \div 20 \text{ miles per gallon} = 10 \text{ gallons of gas}$$

$$10 \text{ gallons} \cdot \$4.50 = \$45.00$$

- 62. (H)** List in order the prime numbers between 6 and 36: 7, 11, 13, 17, 19, 23, 29, and 31. Since there are 8 numbers, find the middle two and calculate the mean to find the median of all the numbers. The middle two are 17 and 19. The mean is $\frac{17 + 19}{2} = 18$.

- 63. (D)** First, find the prime factorization of each number:

$$2,205 = 3 \cdot 3 \cdot 5 \cdot 7 \cdot 7$$

$$3,675 = 3 \cdot 5 \cdot 5 \cdot 7 \cdot 7$$

Now, determine what each prime factorization has in common, and multiply those:

$$2,205 = 3 \cdot (3 \cdot 5 \cdot 7 \cdot 7) = 3 \cdot 735$$

$$3,675 = 5 \cdot (3 \cdot 5 \cdot 7 \cdot 7) = 5 \cdot 735$$

The greatest common factor is 735.

- 64. (K)** The values in the problem can be grouped into 3 terms that each contain a positive and negative value: $(-2, 4)$, $(-6, 8)$, $(-22, 24)$. Arrange the terms into 2 rows to determine the pattern and find the missing terms:

$$\begin{array}{cccc} -2 & -6 & \dots & -22 \\ 4 & 8 & \dots & 24 \end{array}$$

The values in the top row are decreasing by 4, while the values in the bottom row are increasing by 4. Fill in the remaining values:

$$\begin{array}{cccccc} -2 & -6 & -10 & -14 & -18 & -22 \\ 4 & 8 & 12 & 16 & 20 & 24 \end{array}$$

To find the sum, combine the terms as follows:

$$(-2 + 4) + (-6 + 8) + \dots + (-22 + 24)$$

Note that each pair of parentheses sums to 2. Count the number of pairs of parentheses (6) and multiply by 2 to find the final answer:

$$2 + 2 + 2 + \dots + 2 = 6(2) = 12$$

- 65. (C)** To find the average, multiply each number of songs by the number of radio stations. Then add those products and divide by the total number of radio stations:

$$\begin{aligned} & \frac{(14 \cdot 8) + (15 \cdot 4) + (16 \cdot 4) + (17 \cdot 5) + (18 \cdot 9)}{30} \\ &= \frac{112 + 60 + 64 + 85 + 162}{30} \\ &= 16.1 \end{aligned}$$

- 66. (H)** If the ratio is 5 ounces of gasoline to 6 ounces of oil, then gasoline makes up $\frac{5}{11}$ of the fuel mix. Use a proportion to calculate the number of ounces of gasoline (x) in 33 ounces of mix:

$$\frac{x}{33} = \frac{5}{11}$$

$$x = 15 \text{ ounce}$$

- 67. (C)** The question asks for integers that are **not** divisible by 2 or 3. Since all even numbers are divisible by 2, begin by listing the odd integers in this set:

$$13, 15, 17, 19, 21, 23, 25, 27, 29$$

Then, eliminate those integers that are multiples of 3. The remaining integers are:

$$13, 17, 19, 23, 25, 29$$

The answer is 6.

- 68. (G)** The pitcher originally contained 44 ounces of juice ($32 + 12$). If x ounces of grapefruit juice is added, the pitcher now contains $44 + x$ ounces of juice. $12 + x$ ounces of that is grapefruit juice, which makes up $\frac{1}{3}$ of the entire juice mix. Use that information to set up a proportion to solve for x :

$$\frac{12 + x}{44 + x} = \frac{1}{3}$$

$$3(12 + x) = 44 + x$$

$$36 + 3x = 44 + x$$

$$2x = 8$$

$$x = 4 \text{ ounces}$$

- 69. (C)** Let x be the number of bundles needed for the roof's area of 416 square feet. Set up a proportion to find x :

$$\frac{x}{416} = \frac{3}{96}$$

$$x = 416 \left(\frac{3}{96} \right) = 13$$

- 70. (H)** There are three positions for the letters AI in this four-letter combination:

AI __, _AI __, and __AI

For each of these positions of A and I, there are two combinations of the letters R and N: AIRN, AINR, RAIN, NAIR, RNAI, NRAI. Thus, for the letters AI (in that order), there is a total of 6 combinations. The question indicates that IA is also possible, so there are also 6 combinations with the letters in the order IA. The total number of combinations is $6 + 6 = 12$.

- 71. (A)** The only item on the chart that is priced above \$75 is the rain coat. Only one rain coat was purchased. Calculate the sales tax on the price of that rain coat:

$$\$102 \times 0.06 = \$6.12$$

- 72. (J)** Let x be the number of seventh grade students that must join to meet the president's wishes. There are 65 students currently in the club. The percentage of seventh graders is calculated by dividing the number of seventh graders by the total number of students in the club. Using the president's desired percentage of 40% (0.40), the equation is:

$$\frac{20 + x}{65 + x} = 0.40$$

$$20 + x = (0.40)(65 + x)$$

$$20 + x = 26 + 0.40x$$

$$0.60x = 6$$

$$x = 10$$

- 73. (A)** Since $R + S$ is odd, then one of the two variables (R or S) must be odd and the other must be even. Similarly, since $T - S$ is odd, one of the two variables must be odd and the other must be even. Since S is common to both expressions, if S is odd, then R and T are both even; and if S is even, both R and T are odd. It is not possible to determine which of the two possibilities is true, so Options C, D, and E can be eliminated as the correct answer.

Option B ($S + T$) can be eliminated because if $T - S$ is odd, then $S + T$ is also odd.

Option A ($R + T$) is the only possible answer. If R and T are both odd, then $R + T$ is even. If R and T are both even, then $R + T$ is even.

74. (K) $z - \frac{1}{3}z = 12$

$$\frac{2}{3}z = 12$$

$$z = \frac{36}{2} = 18$$

- 75. (D)** First, find the amount of the tax charged on the sale price:

$$\$1.89 \cdot 0.06 = \$0.1134 = \$0.11 \text{ (rounded to the nearest cent)}$$

Then, subtract the original tax from the tax on the sale price calculated above:

$$\$0.15 - \$0.11 = \$0.04$$

- 76. (H)** Lily has a coupon for 30% off, which means she will pay 70% of the regular price ($100\% - 30\% = 70\%$). Lily will pay $\$2.90 \cdot 70\% = \2.03 for this bag of candy.

To calculate the price per ounce, divide the final price Lily pays by the number of ounces in the bag:

$$\$2.03 \div 12 = \$0.16917, \text{ which rounds to } \$0.17$$

- 77. (B)** The formula for the circumference of a circle is $C = 2r\pi$. Let f be the radius of the front tire and b equal the radius of the back tire. Then the circumference of the front tire would be $2f\pi$ and the circumference of the back tire would be $2b\pi$.

Since it takes the front tire 3 revolutions for every 1 revolution of the back tire, the circumference of the back tire must be three times the circumference of the front tire:

$$2b\pi = 3(2f\pi)$$

$$b = 3f$$

Thus, the radius of the back tire (b) is 3 times larger than the radius of the front tire (f).

- 78. (H)** First, add the percentage of cars containing 3 people, 4 people, and 5 or more people:

$$15\% + 7\% + 3\% = 25\%$$

Thus, 25% of the cars contained **at least** 3 people, so use that to calculate the number of cars:

$$420 \times 0.25 = 105 \text{ cars}$$

- 79. (E)** Roberto began his first 5 hour watch at 6:00 p.m. Since he had 5 hours off before he began his second watch, the second watch began 10 hours after the first watch began. Thus, his third watch began 20 hours after his first watch began. 20 hours after 6:00 p.m. is 2:00 p.m. the next day.

- 80. (J)** First, calculate the midpoints of \overline{AC} and \overline{BD} to find the locations of E and F, respectively. Use the mean of the endpoints to find the midpoint.

$$\text{Point E} = \frac{-4 + 6}{2} = 1$$

$$\text{Point F} = \frac{-2 + 10}{2} = 4$$

Now calculate the length of \overline{EF} : $4 - 1 = 3$ units

- 81. (B)** First, find the sale price. 10% of \$44.50 is \$4.45, so the sale price is $\$44.50 - \$4.45 = \$40.05$. Next, find the price after Julian's employee discount. $20\% \times \$40.05 = \8.01 , so the final price of the video game is $\$40.05 - \$8.01 = \$32.04$.

- 82. (G)** First, calculate the three possible values of q :

$$\text{If } n = 1, \text{ then } q = \frac{1}{3^1} = \frac{1}{3}.$$

$$\text{If } n = 2, \text{ then } q = \frac{1}{3^2} = \frac{1}{9}.$$

$$\text{If } n = 3, \text{ then } q = \frac{1}{3^3} = \frac{1}{27}.$$

The least value of r will occur when q is the smallest ($q = \frac{1}{27}$). So, the least possible value

$$\text{of } r \text{ is: } r = 3\left(\frac{1}{27}\right) + 2 = \frac{1}{9} + 2 = 2\frac{1}{9}$$

- 83. (B)** $|(-6) - (-5) + 4| - |3 - 11| =$
 $|3| - |-8| = 3 - 8 = -5$

- 84. (J)** 1 L = 1,000 mL
 1 L = (1,000)(1,000) = 1,000,000

- 85. (B)** If the song is 5 minutes long, then it could be played up to $60 \div 5 = 12$ times per hour. There are 9 hours between 8:00 a.m. and 5:00 p.m. So, the song could be played up to $12 \times 9 = 108$ possible times between the given hours. Since the song is played 6 times per day, the probability of Samantha hearing the song is $\frac{6}{108} = \frac{1}{18}$.

- 86. (K)** The integers that are included in Set R but not in Set T are 10 through 81. (Note that 82 is included in Set T.) To calculate the number of integers between 10 and 81, inclusive, subtract the lowest value from the greatest value: $81 - 10 = 71$. However, since each endpoint (10 and 81) is included, add 1 to that number to get an exact count: $71 + 1 = 72$.

- 87. (C)** Ryan has 130 pages left to read ($150 - 20$). He read 20 pages in 30 minutes, which means he read at a rate of 40 pages per 1 hour. To find out how much longer it will take him to finish the assignment, divide the total pages remaining by the number of pages he is able to read per hour:

$$\frac{130}{40} = 3\frac{1}{4} \text{ hours}$$

- 88. (G)** Angle PQR and the marked 40° angle are vertical angles and thus are congruent, so angle PQR is 40° . Similarly, angle QRP is 45° because it is a vertical angle with the one marked 45° . Given those two angles, calculate the third angle of triangle PQR (angle RPQ):

$$40 + 45 + \text{RPQ} = 180$$

$$\text{RPQ} = 95$$

Angle RPQ and angle x are supplementary, which means they sum to 180, so
 $x = 180 - 95 = 85$.

Similarly, angle y and angle QRP are supplementary, so $y = 180 - 45 = 135$.

Thus, the value of $y - x = 135 - 85 = 50$

- 89. (B)** First, find the amount by which Joe is currently exceeding the speed limit of 55 miles per hour:

$$65\frac{1}{2} - 55 = 10\frac{1}{2} \text{ mph}$$

He increased his speed at a rate of $1\frac{1}{2}$ mph each half-minute. Let x equal the number of whole minutes:

$$\frac{1.5}{30} = \frac{x}{60}$$

$x = 3$ mph every minute

To determine how many minutes he has been exceeding the speed limit, divide by 3:

$$10\frac{1}{2} \div 3 = \frac{7}{2} = 3\frac{1}{2} \text{ minutes}$$

- 90. (H)** The left side of the given equation ($xy + xz = 100$) must be rearranged to look like $\frac{x}{5}(3y + 3z) + 10$ to get the answer.

First, factor out the x : $x(y + z) = 100$

Next, multiply both sides of the equation by 3 and only distribute the 3 in the parenthesis, leaving the x factored out.

$$3x(y + z) = 3(100) \quad x(3y + 3z) = 300$$

Then, divide both sides by 5:

$$\frac{1}{5}x(3y + 3z) = \frac{300}{5} \quad \frac{x}{5}(3y + 3z) = 60$$

Finally, add 10 to both sides:

$$\frac{x}{5}(3y + 3z) + 10 = 70$$

Now that the left side looks like the expression in the question, the answer is the number on the right side (70).

- 91. (C)** First, simplify N: $N = -(3 - 8 + 4) = -(-1) = 1$
 Then, find $-|N|$: $-|N| = -|1| = -1$

- 92. (H)** First, calculate the area of the entire lot:

$$75 \times 100 = 7,500 \text{ sq ft}$$

There are 12 equal-sized squares, so each square is equal to $7,500 \div 12 = 625$ sq ft.

From the figure, it appears the building (shaded region) covers 1 full square, 1 half-square, and 2 quarter-squares, for a total of 2 full squares ($1 + \frac{1}{2} + 2(\frac{1}{4}) = 2$). Two full squares are equal to $625 + 625 = 1,250$ sq ft.

To find the area that is **not** shaded, subtract the area of the building from the area of the entire lot: $7,500 - 1,250 = 6,250$ sq ft, which rounds to 6,000 sq ft.

Remember that the question asks you to find out about **how** many square feet and not **exactly how many square feet**.

- 93. (C)** To answer this question, assign several positive and negative values to x and determine what the value of the expression will be:

x	$1 - x^2$
-2	-3
-1	0
0	1
1	0
2	-3

The pattern shows the largest possible value of the expression is 1, which occurs when $x = 0$.

- 94. (H)** Let x be the number of students with only cats as pets, and let y be the number of students with only dogs as pets.

Calculate x and y using the given information: There are 20 students who have cats, and of those 20 students, 3 have cats and dogs. Thus, $x = 20 - 3 = 17$. There are 23 students who have dogs, and of those 23 students, 3 have cats and dogs. Thus, $y = 23 - 3 = 20$.

To find the total number of students surveyed, add the numbers in the diagram:

$$3 + 5 + x + y = 8 + 17 + 20 = 45$$

- 95. (A)** After Ang gives Julia $\frac{1}{3}$ of his money (which can be expressed as $\frac{1}{3}x$ or $\frac{x}{3}$), Julia has $y + \frac{x}{3}$ in her account. To find $\frac{1}{4}$ of the total in Julia's savings account, multiply $y + \frac{x}{3}$ by $\frac{1}{4}$. Use the distributive property to find the equation that represents the amount of money Julia spent in terms of x and y .

$$\frac{1}{4} \left(y + \frac{x}{3} \right) = \frac{y}{4} + \frac{x}{12}$$

- 96. (K)** Let $x =$ the mean number of hours Nam worked per day during the first 8 days.

Then, $x + 2$ is the number of hours he worked on each of the last 2 days. Since he worked 69 total hours, set up the equation and solve for x :

$$\begin{aligned} 8x + 2(x + 2) &= 69 \\ 10x + 4 &= 69 \\ 10x &= 65 \\ x &= 6.5 \end{aligned}$$

Remember that x is the mean hours worked the first 8 days. The question asked for the number of hours Nam worked the **last** two days:

$$2(x + 2) = 2(6.5 + 2) = 2(8.5) = 17.0 \text{ hours}$$

- 97. (E)** The question says that an equal number (x) of each type of space was purchased. To find the number of each type of space that was purchased, multiply the price per type by x and set it equal to the total amount spent, then solve for x :

$$\begin{aligned} 200x + 350x + 600x &= 11,500 \\ 1,150x &= 11,500 \\ x &= 10 \end{aligned}$$

Thus, the store purchased 10 units of each type of space. To find the total **amount** of page space purchased, multiply each type of space by 10 and add:

$$\begin{aligned} (10 \cdot \frac{1}{4} \text{ page}) + (10 \cdot \frac{1}{2} \text{ page}) + (10 \cdot 1 \text{ page}) \\ = 2\frac{1}{2} + 5 + 10 = 17\frac{1}{2} \text{ pages} \end{aligned}$$

98. (J) Madison’s car travels 27 miles one way to work, so it travels a total of 54 miles per day. In 5 days, it travels $5 \times 54 = 270$ miles. Her car travels 30 miles on each gallon of gas, so it uses $\frac{270}{30} = 9$ gallons of gas per week. To find the total savings, multiply the number of gallons by the savings per gallon:
 $9 \text{ gallons} \cdot \$0.05 = \$0.45$

99. (E) Since the floor measurement is in feet and the tile measurement is in inches, change inches into feet:

$$8 \text{ in.} = \frac{8}{12} = \frac{2}{3} \text{ ft}$$

The floor is 12 ft wide. To find the number of tiles needed along the width of the floor, divide the width by the size of a tile:

$$12 \text{ ft} \div \frac{2}{3} = 12 \cdot \frac{3}{2} = 18 \text{ tiles}$$

The floor is 16 ft long. Find the number of tiles needed along the length of the floor:

$$16 \text{ ft} \div \frac{2}{3} = 16 \cdot \frac{3}{2} = 24 \text{ tiles}$$

To find the total number of tiles needed, multiply the number needed along the width by the number needed along the length:

$$18 \cdot 24 = 432 \text{ tiles}$$

To find the total cost, multiply the total tiles by the cost per tile: $432 \text{ tiles} \cdot \$8 = \$3,456$

100. (G) Using the counting principle, the first digit has 6 possible values (1 through 6). The second digit then has 5 possible values, and the third digit has 4 possible values. So the total number of possible different ID numbers is $6 \times 5 \times 4 = 120$.

Answer Key for Sample Form A

Paragraph 1 T Q U R S	11. C	21. D	31. C	41. D	51. C	61. D	71. A	81. B	91. C
Paragraph 2 S R U Q T	12. K	22. G	32. F	42. G	52. J	62. H	72. J	82. G	92. H
Paragraph 3 Q S R U T	13. D	23. D	33. B	43. A	53. C	63. D	73. A	83. B	93. C
Paragraph 4 U S T R Q	14. G	24. H	34. F	44. H	54. K	64. K	74. K	84. J	94. H
Paragraph 5 T R U Q S	15. B	25. E	35. D	45. C	55. A	65. C	75. D	85. B	95. A
	16. H	26. H	36. K	46. F	56. J	66. H	76. H	86. K	96. K
	17. A	27. B	37. D	47. C	57. D	67. C	77. B	87. C	97. E
	18. G	28. H	38. G	48. F	58. H	68. G	78. H	88. G	98. J
	19. C	29. D	39. E	49. B	59. B	69. C	79. E	89. B	99. E
	20. K	30. J	40. F	50. K	60. F	70. H	80. J	90. H	100. G



Student's First Name (please print) _____

Student's Last Name (please print) _____

PART 1 VERBAL

SCRAMBLED PARAGRAPHS

Paragraph 1

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

Paragraph 2

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

Paragraph 3

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

Paragraph 4

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

Paragraph 5

- The second sentence is Q R S T U
- The third sentence is Q R S T U
- The fourth sentence is Q R S T U
- The fifth sentence is Q R S T U
- The sixth sentence is Q R S T U

LOGICAL REASONING

- | | |
|--------------|--------------|
| 11 A B C D E | 33 A B C D E |
| 12 F G H J K | 34 F G H J K |
| 13 A B C D E | 35 A B C D E |
| 14 F G H J K | 36 F G H J K |
| 15 A B C D E | 37 A B C D E |
| 16 F G H J K | 38 F G H J K |
| 17 A B C D E | 39 A B C D E |
| 18 F G H J K | 40 F G H J K |
| 19 A B C D E | 41 A B C D E |
| 20 F G H J K | 42 F G H J K |
| | 43 A B C D E |
| | 44 F G H J K |

READING

- | | |
|--------------|--------------|
| 21 A B C D E | 45 A B C D E |
| 22 F G H J K | 46 F G H J K |
| 23 A B C D E | 47 A B C D E |
| 24 F G H J K | 48 F G H J K |
| 25 A B C D E | 49 A B C D E |
| 26 F G H J K | 50 F G H J K |
| 27 A B C D E | |
| 28 F G H J K | |
| 29 A B C D E | |
| 30 F G H J K | |
| 31 A B C D E | |
| 32 F G H J K | |

PART 2 MATHEMATICS

MATHEMATICS PROBLEMS

- | | | | |
|--------------|--------------|--------------|---------------|
| 51 A B C D E | 66 F G H J K | 81 A B C D E | 96 F G H J K |
| 52 F G H J K | 67 A B C D E | 82 F G H J K | 97 A B C D E |
| 53 A B C D E | 68 F G H J K | 83 A B C D E | 98 F G H J K |
| 54 F G H J K | 69 A B C D E | 84 F G H J K | 99 A B C D E |
| 55 A B C D E | 70 F G H J K | 85 A B C D E | 100 F G H J K |
| 56 F G H J K | 71 A B C D E | 86 F G H J K | |
| 57 A B C D E | 72 F G H J K | 87 A B C D E | |
| 58 F G H J K | 73 A B C D E | 88 F G H J K | |
| 59 A B C D E | 74 F G H J K | 89 A B C D E | |
| 60 F G H J K | 75 A B C D E | 90 F G H J K | |
| 61 A B C D E | 76 F G H J K | 91 A B C D E | |
| 62 F G H J K | 77 A B C D E | 92 F G H J K | |
| 63 A B C D E | 78 F G H J K | 93 A B C D E | |
| 64 F G H J K | 79 A B C D E | 94 F G H J K | |
| 65 A B C D E | 80 F G H J K | 95 A B C D E | |

SAMPLE TEST, FORM B

PART 1 — VERBAL

Suggested Time — 75 Minutes

45 QUESTIONS

SCRAMBLED PARAGRAPHS

PARAGRAPHS 1-5

DIRECTIONS: In this section, arrange each group of sentences to create the best paragraph. The first sentence for each paragraph is given; the remaining five sentences are listed in random order. Choose the order for these five sentences that will create the **best** paragraph, one that is well-organized, logical, and grammatically correct. Each correctly ordered paragraph is worth **double** the value of a question in any other section of the test. No credit will be given for responses that are only partially correct.

To keep track of your sentence order, use the blanks to the left of the sentences. For example, write “2” next to the sentence you think follows the first sentence, write “3” next to the sentence you think follows “2,” and so on. You may change these numbers if you decide on a different order. When you are satisfied with your sentence order, mark your choices on your answer sheet.

Paragraph 1

Tycho Brahe, a seventeenth-century Danish astronomer, is more famous for his odd and arrogant personality than for any contribution he made to our knowledge of the stars and planets.

- _____ **Q.** That discovery was made by his assistant, Johannes Kepler, who had been denied full access to Brahe’s data until after Brahe’s death.
- _____ **R.** The disagreement turned into a sword fight, and part of Brahe’s nose was sliced off.
- _____ **S.** As a student, he got into an argument with another student about who was the better mathematician.
- _____ **T.** He made a replacement nose for himself out of an alloy of gold and silver, which he reportedly glued to his face.
- _____ **U.** Later in his life, his arrogance may have kept him from playing a part in one of the greatest astronomical discoveries in history—the elliptical orbits of the planets around the sun.

CONTINUE ON TO THE NEXT PAGE ►

Paragraph 2

Stephen Crane was 24 years old when his classic Civil War novel *The Red Badge of Courage* was published in 1895.

- _____ **Q.** Unfortunately, his first novel, *Maggie: A Girl of the Streets*, which chronicled life among the poor in New York City’s Bowery slums, was not as successful.
- _____ **R.** That novel, his second, brought him almost overnight international celebrity status.
- _____ **S.** One story says that, in an attempt to recoup his losses, Crane paid people to ride the Manhattan El train carrying copies of the book.
- _____ **T.** *Maggie* was self-published by Crane when he was only 21, using money borrowed from his brother.
- _____ **U.** The loan became a loss—the gritty social realism of *Maggie* earned Crane praise from critics, but he probably gave away more copies than he sold.

Paragraph 3

Macaws, a type of parrot found in South America, are among the largest and most beautiful birds in the world.

- _____ **Q.** Scientists believe that the birds may eat the clay in order to counteract poisons contained in some of these fruit seeds.
- _____ **R.** The birds do not appear to eat clay to satisfy hunger; they ingest it even when fruit seeds, their favorite foods, are available.
- _____ **S.** Like many other parrot species, they are very intelligent as well, yet some of their behaviors have baffled scientists.
- _____ **T.** This theory is supported by the fact that the birds eat more clay in the dry season, when less-poisonous food is scarce.
- _____ **U.** For example, macaws regularly flock to riverbanks to eat the clay found in river mud.

CONTINUE ON TO THE NEXT PAGE ►

Paragraph 4

In the colder regions of the Northern Hemisphere, an energy-efficient house should have most of its windows facing south.

- _____ **Q.** The reason that architects and builders want this “southern exposure” is related to the position of the sun in the sky.
- _____ **R.** To take advantage of this, during the winter the south-facing windows should be uncovered during the day, allowing sunlight—and heat—to penetrate directly into the living space.
- _____ **S.** Though the sun always rises in the east and sets in the west, in the Northern Hemisphere the sun is permanently situated in the southern portion of the sky.
- _____ **T.** In these ways, the sun’s warmth is retained in the house, a form of passive solar heating.
- _____ **U.** At night, when temperatures go down, the windows should be covered by curtains or other insulating materials to prevent the heat from escaping.

Paragraph 5

To the earliest European traders, Africa seemed to be loosely organized into tribal societies, without any great centers of wealth or learning.

- _____ **Q.** He described a thriving metropolis with great universities and dozens of private libraries.
- _____ **R.** Unfortunately, by the nineteenth century raids by neighboring tribes had made Timbuktu a shadow of its former self.
- _____ **S.** This impression began to change in the fifteenth century, as Europeans traveled inland into western Africa.
- _____ **T.** In 1470, an Italian merchant named Benedetto Dei traveled to Timbuktu and confirmed these stories.
- _____ **U.** The travelers told tales of an enormous city, known as Timbuktu, on the southern edge of the Sahara Desert, where the markets were crowded with goods and gold was bought and sold.

CONTINUE ON TO THE NEXT PAGE ►

LOGICAL REASONING

QUESTIONS 11-20

DIRECTIONS: Read the information given and choose the **best** answer to each question. Base your answer **only on the information given**.

In a logical reasoning test, certain words must be read with caution. For example, “The red house is **between** the yellow and blue houses” does not necessarily mean “The red house is **between and next to** the yellow and blue houses”; one or more other houses may separate the red house from the yellow house or from the blue house. This precaution also applies to words such as **above, below, before, after, ahead of, and behind**.

11. A star named Quil is the center of four orbiting planets, which are named Dorb, Needer, Sly, and Tyne. Each planet travels in a separate orbit, and each orbit is a circle. All four orbits lie in one plane. The farther a planet is from Quil, the faster it travels.
- 1) Planet Needer is closest to Quil.
 - 2) The orbit of planet Dorb is next to the orbit of Sly.
 - 3) The orbit of Sly is farthest from the orbit of Needer.

Which planet travels fastest?

- A. Needer
- B. Dorb
- C. Sly
- D. Tyne
- E. Cannot be determined from the information given.

12. Any student who receives a grade lower than B- on the February report card is not permitted to play on a sports team in the spring.

Based only on the information above, which of the following **must** be true?

- F. Every student who received all A's on the February report card plays on a sports team in the spring.
- G. No student who plays on a sports team in the spring received a grade of C+ or lower on the February report card.
- H. The best athletes also get the highest grades.
- J. Students who do not play on sports teams in the spring received higher grades in February than those who do.
- K. Students who play on sports teams spend a lot of time studying.

CONTINUE ON TO THE NEXT PAGE ►

13. A one-room school has three grades—6th, 7th, and 8th. Eight students attend the school: Ann, Bob, Carla, Doug, Ed, Filomena, George, and Heidi. In each grade there are either two or three students.

- 1) Ann, Doug, and Filomena are all in different grades.
- 2) Bob and Ed are both in the 7th grade.
- 3) Heidi and Carla are in the same grade.

Based only on the information above, which of the following **must** be true?

- A.** Exactly two students are in the 6th grade.
 - B.** Carla and Doug are in the same grade.
 - C.** Exactly three students are in the 7th grade.
 - D.** Heidi and Ann are in the same grade.
 - E.** Filomena is in the 8th grade.
-

14. Four bikes are parked in a bike rack.

- 1) The blue bike is parked on the extreme left.
- 2) The yellow bike is next to the red bike.
- 3) The green bike is between the yellow bike and the blue bike.
- 4) Paul's bike is between the blue bike and the red bike.

Based only on the information above, which of the following **must** be true?

- F.** Paul's bike is green.
 - G.** The yellow bike is between the red bike and the green bike.
 - H.** Paul's bike is yellow.
 - J.** The red bike is next to the green bike.
 - K.** The color of Paul's bike cannot be determined.
-

15. In the town of Hoxie, the millworkers are all over six feet tall. Every Hoxie millworker is good at math.

Based only on the information above, which of the following **must** be true?

- A.** At least some people in Hoxie who are over six feet tall are good at math.
 - B.** At least some people in Hoxie who are good at math are not millworkers.
 - C.** Anyone in Hoxie who is over six feet tall works at the mill.
 - D.** Anyone in Hoxie who is good at math is over six feet tall.
 - E.** Anyone in Hoxie who is good at math works at the mill.
-

16. Six houses are next to one another on one side of Park Street. The houses are lettered L, M, N, P, Q, and R, consecutively.

- 1) The two houses that have fenced yards are immediately next to one another.
- 2) Three houses have porches.
- 3) None of the houses with a porch is next to one another.
- 4) No house has both a fenced yard and a porch.

Based only on the information above, which of the following **must** be true?

- F.** Houses L and R have porches.
 - G.** House N has a porch.
 - H.** House P has a porch.
 - J.** Houses P and Q have fenced yards.
 - K.** Either House M or House N has a fenced yard, but it is not possible to determine which one.
-

CONTINUE ON TO THE NEXT PAGE ►

Questions 17 and 18 refer to the following information.

In the code below, (1) each letter always represents the same word, (2) each word is represented by only one letter, and (3) in any given sentence, the position of a letter is **never** the same as that of the word it represents.

L W Q P R means
"Marie eats pizza and chocolate."

U Z R V N means
"Sean likes wings and soda."

L V P T R means
"Jackson eats wings and pizza."

N Y R X W means
"Irena likes chocolate and juice."

17. Which letter represents the word "juice"?

- A. N
- B. Y
- C. X
- D. W
- E. Cannot be determined from the information given.

18. Which word is represented by the letter U?

- F. Sean
- G. likes
- H. wings
- J. and
- K. soda

19. Most people in the Skydiving Club are not afraid of heights. Everyone in the Skydiving Club makes three parachute jumps a month.

Based only on the information above, which of the following statements **must** be true?

- A. Skydivers are less afraid of heights than are non-skydivers.
- B. A person must make three parachute jumps a month in order to join the Skydiving Club.
- C. Some people who are afraid of heights make three parachute jumps a month.
- D. Most people who are not afraid of heights are in the Skydiving Club.
- E. Every skydiver makes at least one parachute jump a month.

20. Six students stood in a line. Their names are Larnell, Masha, Nikia, Pedro, Ryan, and Sara, in that order.

- 1) The two students that wear glasses are immediately next to one another.
- 2) Three students are wearing school T-shirts.
- 3) None of the students wearing a school T-shirt is next to each other.
- 4) No student is wearing both glasses and a school T-shirt.

Based only on the information above, which of the following **must** be true?

- F. Pedro and Ryan are wearing glasses.
- G. Nikia is wearing a school T-shirt.
- H. Pedro is wearing a school T-shirt.
- J. Larnell and Sara are wearing school T-shirts.
- K. Either Masha or Nikia is wearing a school T-shirt, but it is not possible to determine which one.

CONTINUE ON TO THE NEXT PAGE ►

READING

QUESTIONS 21-50

DIRECTIONS: Read each passage below and answer the questions following it. Base your answers on information contained only in the passage. You may reread a passage if you need to. Mark the best answer for each question.

Most people—if they think about bubbles, suds, and lather at all—consider them to be fairly ordinary physical occurrences. But scientists have been studying foams, particularly aqueous (watery) foams, for more than 300 years. The phenomenon of foam creation is quite complex, and only recently have scientists begun to understand how foams are formed.

Aqueous foam is produced when a gas—air, for example—is dispersed within a liquid, such as water. However, a pure liquid produces an unstable froth, so a third ingredient must be added to stabilize the froth into foam. The most common stabilizers, or foaming agents, are soaps and proteins. These stabilizers are also called surfactants, or surface-active agents. Surfactant molecules chemically disturb the surface of the liquid, lowering its surface tension and creating a foam of bubbles, each encased in a watery film. The dispersing gas continues to build bubbles until the liquid is partially or completely converted to foam, with a surface area far greater than that of the original volume of liquid.

Aqueous foams have a characteristic life cycle. During the first stage, the liquid content is high and the foam is characterized by spherical bubbles of nearly uniform size, each with a relatively thick outer film of liquid. As the foam ages, the liquid drains away, and the foam “dries.” The bubbles are no longer spherical; they have become polyhedrons with multiple flat surfaces. Eventually, outside forces—usually evaporation or vibration—cause the film walls of the bubbles to collapse, and the foam disappears.

The aqueous foams of shampoo, bubble bath, and dishpan suds were developed largely to satisfy consumer expectations. Protein foaming agents create whipped cream and marshmallows. Still other foams have important practical applications. Perhaps best known of these is the foam used in fire extinguishers. It puts out oil or gasoline fires by smothering them in a blanket of foam made of carbon dioxide bubbles stabilized by a protein-based surfactant. In general, these extinguishers have the advantage of minimizing the extensive water damage caused by more traditional fire-fighting methods.

Less well-known are the applications of foam technology to the recovery of oil from deep wells. Water is often present along with this energy-producing resource, and the water must be removed before the well can become productive. Drillers introduce a gas, along with an appropriate surfactant, into the well, and then pump out the resulting foam. Thus the water is removed, leaving a more productive oil well.

21. Which of the following best tells what this passage is about?
- A. the life cycle of an aqueous foam
 - B. how foam was discovered
 - C. industrial uses of aqueous foams
 - D. differences between surfactants and foaming agents
 - E. the formation and uses of aqueous foams

22. Which of the following occurs only later in the life cycle of foam?
- F. addition of a surfactant
 - G. an increase in surface area
 - H. bubbles covered in watery film
 - J. bubbles with many flat sides
 - K. a decrease in surface tension of the liquid
23. How does a surfactant contribute to the formation of an aqueous foam?
- A. It dissolves the gas in the liquid.
 - B. It changes the surface tension of the liquid.
 - C. It delays the formation of polyhedron bubbles.
 - D. It causes the bubbles to disappear.
 - E. It converts soap into foam.
24. Which of the following is characteristic of a “young” aqueous foam?
- F. spherical bubbles
 - G. polyhedral bubbles
 - H. bubbles with thin walls
 - J. “dry” foam, with liquid draining away
 - K. increased surface tension of the liquid
25. According to the passage, foam is better than water in fighting oil fires because foam
- A. results in less damage.
 - B. is not flammable.
 - C. does not evaporate.
 - D. has bubbles that form a film.
 - E. promotes oil recovery.
26. Which of the following is **not** mentioned in the passage as an ingredient of dishpan suds?
- F. protein
 - G. water
 - H. soap
 - J. air
 - K. a surfactant

CONTINUE ON TO THE NEXT PAGE ►

Most movies about spies and undercover agents feature fascinating special equipment. Many of these gadgets exist only in the imaginations of script writers, but others are actually used in espionage activities. One device with a surprisingly long and colorful history, both in and out of the cloak-and-dagger world, is the concealed camera.

In the late nineteenth century, “detective cameras” were popular with amateur photographers who wanted to take snapshots of unsuspecting people on the street. The camera was usually carried in plain view. Its disguise was simple: it was a plain box resembling a large and rather heavy parcel or a piece of luggage, with no external lens or controls. When people caught on to the deception, though, designers began hiding cameras in other objects, ranging from hats and books to purses and pocket watches. One concealed camera even looked like an ordinary camera, but had mirrors that allowed users to take photographs at a right angle to the direction of whatever the photographer seemed to be viewing.

Although most early spy cameras were meant to be used on the ground, cameras have been hidden in the sky almost from the beginning of photography. In World War I, both sides realized the strategic value of taking aerial photographs of enemy territory from the newly invented airplane. To spy more discreetly, without the use of airplanes, the Germans attached cameras to homing pigeons and sent them over French army positions. Timers were set to trigger the cameras when the pigeons were expected to be flying over their targets. That particular attempt proved impractical, but the idea behind it did not: aerial photography became a staple of World War II.

In the mid-twentieth century, a new era of spying with cameras began under the Cold War. This was a period of worldwide tension and competition between the Communist world, led by the Soviet Union, and the Western world, represented by the United States and its allies. The conflict was

expressed through propaganda, arms races, and especially espionage. During the Cold War, both sides competed to develop new technologies to use photography in spying. Sophisticated concealed cameras were put in matchboxes, pens, rings, cigarette lighters, makeup cases, guns, and even hidden in clothing, with the lens concealed in a button. Almost any object that could be carried without attracting attention was probably made into a camera and carried by an undercover agent. Cameras were also hidden in furniture and office machines such as copiers, which took photos of every document that was copied. The development of the long-range telephoto lens even allowed spies to take clear photos from a distance, such as across the street from an embassy.

Today, space has proven to be the ultimate location for hidden cameras, as satellite-mounted cameras can produce highly detailed photographs of objects anywhere on earth.

27. Which of the following best tells what this passage is about?
- A. the role of hidden cameras in national security
 - B. the problems associated with hidden cameras
 - C. the mechanics of the “detective camera”
 - D. historical information about the concealed camera
 - E. how cameras are mounted in satellites
28. According to the passage, “detective cameras” were popular with
- F. spies.
 - G. detectives.
 - H. the German army.
 - J. professional photographers.
 - K. amateur photographers.

CONTINUE ON TO THE NEXT PAGE ►

- 29.** What was the original purpose of the early detective cameras?
- A.** to resemble an ordinary object such as a box
 - B.** to deceive people into thinking that the box contained a camera
 - C.** to use in espionage activities by secret agents
 - D.** to take pictures without the subjects' knowledge
 - E.** to be carried by homing pigeons for surveillance
- 30.** The camera with mirrors (lines 21-25) allowed the photographer to
- F.** conceal the camera in a hat or pocket watch.
 - G.** take a picture with no external lens or controls.
 - H.** disguise the camera as a simple box.
 - J.** take a picture of one scene while appearing to take a picture of another.
 - K.** determine whether other photographers were using detective cameras.
- 31.** Photographers stopped using the box-type "detective camera" because
- A.** people were no longer deceived by them.
 - B.** the cameras could not be used with external lenses.
 - C.** they wanted to avoid being mistaken for secret agents.
 - D.** professional photographers refused to use them.
 - E.** espionage was conducted during the war.
- 32.** What was the "idea" referred to in line 40?
- F.** taking photographs without permission
 - G.** taking photographs from above
 - H.** disguising a camera as something else
 - J.** using cameras in wartime
 - K.** attaching cameras to homing pigeons

CONTINUE ON TO THE NEXT PAGE ►

One of the books that has done the most to alert the world to the dangers of environmental degradation was George Perkins Marsh's *Man and Nature*. Its message—
5 that Western society was in the process of causing irreparable harm to the environment—greatly influenced ecologists during the beginning of the modern environmentalist movement in the 1960s. Marsh
10 was not, however, part of this movement. Surprisingly, *Man and Nature* was first published in 1864.

Marsh first observed the environmentally destructive effects of human activities
15 while growing up in Vermont in the early nineteenth century. The heavy demand for firewood had depleted the forests, and extensive sheep grazing had stripped the land. The result was flooding and soil erosion. Furthermore, streams were fouled by
20 wastes dumped from numerous mills and dye houses.

Much later in his life, after careers in law, business, farming, and politics, Marsh
25 served as ambassador to Italy. There he noticed land abuse similar to what he had seen in Vermont. Overgrazing and forest mismanagement had rendered desolate areas that had been productive farmland
30 since the days of the Roman Empire. Marsh attributed this to what he called “. . . man's ignorant disregard for the laws of nature.”

In Italy, Marsh began to organize his observations and theories. He wrote in
35 a way intended to educate readers about the impact of industrial and agricultural practices on the environment. In *Man and Nature*, he evaluated the important relationships between animals and plants,
40 discussed forestry practices in great detail, and analyzed the ways natural water supplies are affected by human use.

Man and Nature challenged the popular belief that nature can heal any damage
45 that people inflicted upon it. Marsh argued that human beings may use and enjoy, but not destroy, the riches of the earth.

Furthermore, he asserted that everything in nature is significant, and that even the
50 tiniest organism affects the fragile environmental balance. His belief that drastic alteration of this balance would be dangerous is now accepted as a fundamental principle of modern environmental science.

55 Although he pointed out environmental damage caused by irresponsible human activities, Marsh did not oppose every human alteration to the environment. To him, the goal was proper management,
60 not a return to wilderness conditions. People should consider the consequences of their actions, he wrote, and become “co-worker[s] with nature.” Marsh praised the Suez Canal, the human-made waterway between the Mediterranean Sea and
65 the Gulf of Aden, as “the greatest and most truly cosmopolite physical improvement ever undertaken by man.” He believed that the advantages of the canal—improved
70 transportation and commerce—would outweigh any environmental damage. Yet he also warned of possible unintended consequences, such as destructive plants and animals spreading from one body of water to
75 the other.

Marsh was considered a radical thinker during his lifetime. By the late nineteenth century, however, his writings, along with those of John Muir, Henry David Thoreau,
80 and others, had inspired what became known as the conservation movement. The conservationists of that time sought to educate the public that wilderness areas were worth preserving, and they were
85 responsible for creating the National Park Service and the National Forest Service.

CONTINUE ON TO THE NEXT PAGE ►

33. What prompted Marsh to write *Man and Nature*?
- A. his belief that nature can heal itself
 - B. his interest in the modern environmentalist movement
 - C. his own mismanagement of farmland
 - D. his belief that the Roman Empire was responsible for land abuse in Italy
 - E. his observations of land mismanagement in Vermont and Italy
34. Marsh attributed people's irresponsible environmental practices to
- F. their failure to reclaim land desolated by erosion.
 - G. their desire to keep the earth unspoiled for future generations.
 - H. land management practices during the Roman Empire.
 - J. their lack of understanding of nature.
 - K. the influence of the modern environmentalist movement.
35. What is the most likely reason the author uses the word "surprisingly" in line 11?
- A. to point out that Marsh's theories have been overturned by modern environmentalists
 - B. to argue that Marsh's ideas, while valid in their time, do not apply to the present
 - C. to show that Marsh introduced ideas a century before they became well-accepted
 - D. to suggest that Marsh's ideas were actually taken from other environmentalists
 - E. to suggest that environmental pollution was not a problem in 1864
36. Which of the following best describes how modern environmentalists view George Perkins Marsh?
- F. overly optimistic about nature's ability to renew itself
 - G. outdated but interesting
 - H. a man whose ideas were ahead of his time
 - J. a politician who should not have tried to write a scientific book
 - K. unrealistic about his desire to return to wilderness conditions
37. Which of the following provides support for the author's statement in lines 55-58?
- A. Marsh's concern about dangerous plants and animals
 - B. Marsh's reputation as a radical thinker
 - C. Marsh's contribution to the conservation movement
 - D. Marsh's desire for the earth to become wild again
 - E. Marsh's approval of an intervention that benefited human life
38. Marsh's main contribution to the environmental movement of the 1960s was the
- F. realization that environmental damage began in the twentieth century.
 - G. importance of preserving natural areas.
 - H. idea that human activities could damage the environment.
 - J. growth of the conservation movement.
 - K. knowledge that environmental degradation was chiefly an American problem.

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The British novelist Charles Dickens is well known for the colorful and eccentric characters he created in his many novels. But one of his books, *David Copperfield*, seems to have a great deal to do with fact as well as fiction. After attempting to write his autobiography, Dickens abandoned the project and began to work on a novel, the plot of which was loosely based on his own boyhood experiences. Apparently, it was easier for him to weave the events of his own life into the fiction of *David Copperfield* than to write about them in nonfiction.

Some of Dickens' most troubling memories involved a job he held in 1824 as a 12-year-old child. Because his family was deeply in debt, he was forced to quit school and go to work in a London factory, pasting labels on pots of shoe polish. Young Charles lived in a boardinghouse, using his meager wages to support himself and to help pay his family's debts. He worked in the dreary, run-down factory six days a week from 8:00 a.m. to 8:00 p.m. Such long hours were not unusual at the time, for children or adults, but Dickens was miserable during the entire four months he spent working at the factory.

Even when the family finances improved, the boy continued to work at the factory until his father quarreled with Dickens' boss, who promptly dismissed the son. Charles was upset at being fired, but relieved to be out of the factory. Thus he felt betrayed when his mother, anxious for the boy's weekly wage, succeeded in making peace and getting Dickens' job back for him. The father, however, now sided with his son and the boy was sent back to school. "I know how these things have worked together to make me what I am," Dickens later wrote, but he never forgot that his mother was eager for him to return to work.

As an adult, Dickens always remembered the shame and humiliation he felt during those months at the factory. For years afterward, whenever in London, he could not go near the sites of the factory and boardinghouse, going out of his way to avoid those

painful reminders of his past. In fact, Dickens never told his wife and children about his childhood work experience. It was only after his death that they heard of it from a family friend whom Dickens had confided in.

Instead, Dickens expressed his feelings by giving his fictional "other self," David Copperfield, a job similar to the one he had so hated. In the novel, ten-year-old David is forced by his harsh stepfather to work as a bottle washer in a factory. Young David, who "suffered exquisitely" as a child manual laborer, was apparently Dickens' way of dealing with his own past. *David Copperfield* was to become Dickens' most popular novel, and Dickens himself called it his "favorite child."

39. Which of the following best tells what this passage is about?
- A. Dickens' childhood dreams and desires
 - B. Dickens' autobiography written while he was a child
 - C. Dickens' childhood relationship with his parents
 - D. the autobiographical basis for Dickens' *David Copperfield*
 - E. the many characters created by Dickens for *David Copperfield*
40. When did Dickens begin writing *David Copperfield*?
- F. after giving up work on his own life story
 - G. shortly after he worked at the shoe polish factory
 - H. when he decided to resume his long-delayed schooling
 - J. after revisiting the shoe polish factory as an adult
 - K. when he no longer felt ashamed about his childhood

CONTINUE ON TO THE NEXT PAGE ►

41. Which of the following is the most reasonable inference about Dickens as a child?
- A. He believed that children should learn to work and support themselves.
 - B. He was dreamy and imaginative.
 - C. He planned to be a factory owner when he grew up.
 - D. He thought that all work was worthwhile if done well.
 - E. He preferred attending school to working in a factory.
42. Which of the following is the primary reason that Dickens wrote *David Copperfield*?
- F. He needed money from the novel to help pay his debts.
 - G. It was too difficult for him to write about his memories directly in an autobiography.
 - H. He wanted his own children to know of his work in the factory.
 - J. His autobiography had not been well accepted by the public.
 - K. He wanted to demonstrate that his childhood job had helped him succeed in later life.
43. What can be concluded about the relationship between Dickens and his mother as described in the third paragraph?
- A. He never saw her again after he left to work in the shoe polish factory.
 - B. He was grateful that she got his job back for him.
 - C. He resented her for putting the need for his wages above his own happiness.
 - D. He never included her in any of his novels.
 - E. He had trouble remembering her role in the unpleasant events of his childhood.
44. What most directly enabled Charles Dickens to return to school?
- F. a downturn in the family's finances
 - G. his father's quarrel with the factory owner
 - H. getting fired from the factory
 - J. his mother's desire for his weekly wage
 - K. his father's intervention

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The African country of Zimbabwe took its name from the Shona word meaning “stone enclosures” or “venerated houses.” In fact, dozens of stone ruins are today scattered throughout Zimbabwe and other areas in southeastern Africa. One of these ruins, known as “Great Zimbabwe,” was once a fabled city that inspired tales that circulated throughout Europe. Where was this remarkable city, and who had built it? For centuries the mystery occupied the minds of explorers and treasure-seekers.

The first reports to Europeans of Great Zimbabwe were spread a thousand years ago by Arab traders sailing between the Middle East and the east coast of Africa. They told of the fabulous wealth of a mysterious stone city in the African interior. In their tales, that city became associated with their understanding of Middle Eastern history—with the Queen of Sheba, King Solomon, and his legendary gold mines, long since lost to the world. By the sixteenth century, Portuguese explorers regularly visited East Africa, searching for “King Solomon’s gold,” but they never found Great Zimbabwe. In 1552, a Portuguese historian, João de Barros, recorded a story told by the Arabs about a city with a “square fortress of masonry within and without, built of stones of marvelous size, and there appears to be no mortar joining them.”

In fact, Great Zimbabwe **was** a marvel. In one area, a massive wall, over thirty feet high and twenty feet thick, created a great enclosure. Another area contained a fortress-like series of walls, corridors, and steps built into the bluff above. Throughout the city, each stone was precisely fitted to the others without the use of mortar.

In the 1870s, a German geologist, Karl Mauch, was the first European to see Great Zimbabwe, by then in ruins. Mauch realized that he had “rediscovered” the fabled city from de Barros’s story. He jumped to the conclusion that Great Zimbabwe had been built by the Queen of

Sheba. British authorities sent a British journalist, Richard Hall, to Great Zimbabwe to investigate Mauch’s report. Archaeology was still in its infancy, and Hall, convinced that the structures had been built by ancient people from the Middle East, dug up and discarded archaeological deposits that would have revealed much about the true history of Great Zimbabwe. Later European excavations destroyed even more valuable evidence.

In the twentieth century, after excavating areas that had not been disturbed, David Randall-MacIver, a Scottish Egyptologist, and Gertrude Caton-Thompson, an English archaeologist, concluded that the ruins were unmistakably African in origin. Great Zimbabwe was most likely built during the fourteenth or fifteenth century by the ancestors of the present-day Shona people. Recent carbon-14 dating supports their conclusion. Great Zimbabwe was once home to an estimated 20,000 people, the center of a great Shona kingdom. Wealthy Shona kings traded their ivory and gold in coastal towns for other goods, thus accounting for the discovery of beads and other foreign wares in the ruins.

One mystery of Great Zimbabwe had been solved. Another mystery remains: why was the settlement at Great Zimbabwe abandoned, leaving the magnificent stone architecture to fall into ruins?

45. Which of the following best tells what this passage is about?
- A. a brief history of the nation of Zimbabwe
 - B. inaccuracies in the recording of African history
 - C. a comparison of Great Zimbabwe with other African archaeological sites
 - D. the true story of the Great Zimbabwe ruins
 - E. how Karl Mauch discovered Great Zimbabwe

46. Which of the following statements about Richard Hall's opinion on Great Zimbabwe would the author most likely support?
- F. First impressions are generally accurate.
 - G. Preconceptions can cloud a person's judgment.
 - H. The history of a people can best be judged by looking at its present culture.
 - J. Advanced cultures developed first in the Middle East, then spread to the rest of the world.
 - K. Much of Middle Eastern culture was derived from the culture of the Shona people.
47. What was "one mystery of Great Zimbabwe" (line 77) that had been solved?
- A. why foreign wares were found in the ruins
 - B. why the settlement was abandoned
 - C. the source of the ivory and gold
 - D. why it was not discovered by Europeans until the 1870s
 - E. who had built it and when
48. Which of the following statements about the Shona people is best supported by the passage?
- F. They no longer exist as a distinct group.
 - G. They live along Africa's East Coast.
 - H. They are descendants of the people who built Great Zimbabwe.
 - J. They lived in the Middle East before settling in Africa.
 - K. They were once ruled by King Solomon and the Queen of Sheba.
49. Which of the following best illustrates the statement that "Archaeology was still in its infancy" (lines 51-52)?
- A. the stone buildings built without mortar
 - B. the abandonment of Great Zimbabwe
 - C. the conclusions of David Randall-MacIver and Gertrude Caton-Thompson
 - D. the discovery of beads and other foreign materials at Great Zimbabwe
 - E. the excavations conducted by Richard Hall
50. Which of the following best describes the relationship of Portuguese explorers to Great Zimbabwe?
- F. They searched for it but never found it.
 - G. They told Arab traders where to find it.
 - H. They found King Solomon's mines but didn't realize it.
 - J. They destroyed archaeological evidence about its history.
 - K. They were responsible for its abandonment.

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PART 2 — MATHEMATICS

Suggested Time — 75 Minutes

50 QUESTIONS

GENERAL INSTRUCTIONS

Solve each problem. Select the **best** answer from the choices given. Mark the letter of your answer on the answer sheet. You can do your figuring in the test booklet or on paper provided by the proctor. **DO NOT MAKE ANY MARKS ON YOUR ANSWER SHEET OTHER THAN FILLING IN YOUR ANSWER CHOICES.**

IMPORTANT NOTES:

- (1) Formulas and definitions of mathematical terms and symbols are **not** provided.
- (2) Diagrams other than graphs are **not** necessarily drawn to scale. Do not assume any relationship in a diagram unless it is specifically stated or can be figured out from the information given.
- (3) Assume that a diagram is in one plane unless the problem specifically states that it is not.
- (4) Graphs are drawn to scale. Unless stated otherwise, you can assume relationships according to appearance. For example, (on a graph) lines that appear to be parallel can be assumed to be parallel; likewise for concurrent lines, straight lines, collinear points, right angles, etc.
- (5) Reduce all fractions to lowest terms.

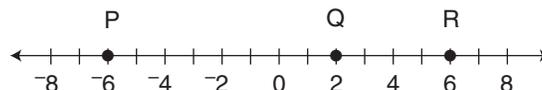
51. $100(2 + 0.1)^2 - 100 =$

- A. 101
- B. 141
- C. 200
- D. 301
- E. 341

52. Jack scored a mean of 15 points per game in his first 3 basketball games. In his 4th game, he scored 27 points. What was Jack's mean score for the 4 games?

- F. 15
- G. 16
- H. 17
- J. 18
- K. 21

53.



How many units is it from the midpoint of \overline{PQ} to the midpoint of \overline{QR} ?

- A. 2
- B. 4
- C. 6
- D. 8
- E. 10

54. Each child in a certain class is required to have school supplies of 1 notebook and 2 pencils. One notebook costs \$1.09 and one pencil costs \$0.59. With \$15, what is the maximum number of children that can be provided with the required supplies? (Assume no tax.)

- F. 6
- G. 7
- H. 8
- J. 9
- K. 12

55. What time will it be 46 hours after 9:30 p.m. on Friday?

- A. 7:30 p.m. Saturday
- B. 7:30 a.m. Sunday
- C. 6:30 p.m. Sunday
- D. 7:30 p.m. Sunday
- E. 9:30 p.m. Sunday

56. Judy is n years older than Carmen and twice as old as Frances. If Frances is 15, how old is Carmen?

- F. 30
- G. $15 + n$
- H. $15 + 2n$
- J. $15 - n$
- K. $30 - n$

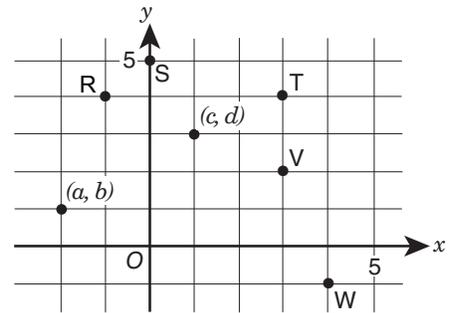
57. If $0.00102 = \frac{102}{N}$, what is the value of N ?

- A. 10,000
- B. 100,000
- C. 1,000,000
- D. 100,000,000
- E. 1,000,000,000

58. On a scale drawing, a distance of 1 foot is represented by a segment 0.25 inch in length. How long must a segment on the scale drawing be to represent a 36-inch distance?

- F. 0.25 in.
- G. 0.75 in.
- H. 3 in.
- J. 9 in.
- K. 144 in.

59.



The figure above is drawn to scale. Which point best shows the location of $(c + a, d + b)$?

- A. R
- B. S
- C. T
- D. V
- E. W

60. $\frac{(-51)^2}{17^3} =$

- F. -2
- G. $-\frac{1}{17}$
- H. $\frac{9}{17}$
- J. $\frac{16}{17}$
- K. 2

61. $1 \text{ dollar} = 7 \text{ lorgs}$
 $1 \text{ dollar} = 0.5 \text{ dalts}$

Kwamme has 140 lorgs and 16 dalts. If he exchanges the lorgs and dalts for dollars according to the rates above, how many dollars will he receive? (Assume there are no exchange fees.)

- A. \$28
- B. \$52
- C. \$182
- D. \$282
- E. \$988

CONTINUE ON TO THE NEXT PAGE ►

68. A prom dress originally priced at \$450 is on sale for $\frac{1}{3}$ off the original price. In addition, Alia has a coupon for 10% off the discounted price. If there is a 6% sales tax on the final price of the dress, what would Alia's total cost be?

F. \$111.30
 G. \$143.10
 H. \$270.30
 J. \$286.20
 K. \$297.00

69. How many different two-digit numbers can be formed from the digits 7, 8, 9 if the numbers must be even and no digit can be repeated?

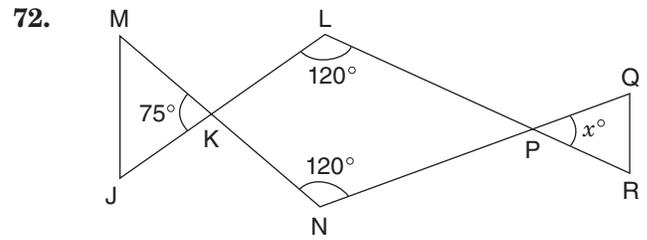
A. 0
 B. 1
 C. 2
 D. 3
 E. 6

70. A group of mountain climbers started the day at an elevation of 125 feet below sea level. At the end of the day, they camped at 5,348 feet above sea level. What was the climbers' elevation gain for the day?

F. 5,223 ft
 G. 5,373 ft
 H. 5,377 ft
 J. 5,463 ft
 K. 5,473 ft

71. How many integers are between $\frac{5}{2}$ and $\frac{20}{3}$?

A. 3
 B. 4
 C. 5
 D. 10
 E. 15



In the figure above, \overline{JKL} , \overline{MKN} , \overline{NPQ} , and \overline{LPR} are straight line segments. What is the value of x ?

F. 25
 G. 45
 H. 50
 J. 60
 K. 75

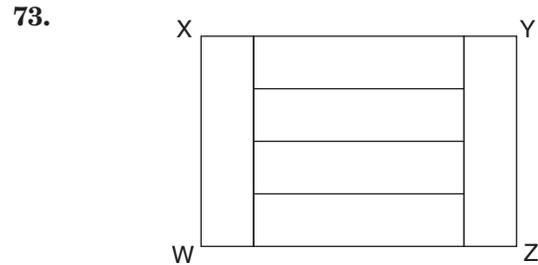


Figure WXYZ above is composed of 6 congruent rectangular panels. The area of figure WXYZ is 54 square centimeters. What is the perimeter of figure WXYZ in centimeters?

A. 24 cm
 B. 30 cm
 C. 36 cm
 D. 45 cm
 E. 50 cm

74. What is the prime factorization of 714?

F. $2 \cdot 357$
 G. $2 \cdot 3 \cdot 119$
 H. $2 \cdot 7 \cdot 51$
 J. $6 \cdot 7 \cdot 17$
 K. $2 \cdot 3 \cdot 7 \cdot 17$

CONTINUE ON TO THE NEXT PAGE ►

75. Three gallons of gasoline are needed to drive 65 miles. At this rate, how many gallons are needed to drive m miles?

- A. $\frac{3}{65}$ gal.
B. $\frac{3m}{65}$ gal.
C. $3m$ gal.
D. $\frac{65}{3}$ gal.
E. $\frac{65m}{3}$ gal.

76. If Crystal multiplies her age by 3 and then adds 2, she will get a number equal to her mother's age. If m is her mother's age, what is Crystal's age in terms of m ?

- F. $-\frac{2}{3}m$
G. $\frac{m-2}{3}$
H. $3m+2$
J. $\frac{m}{3}-2$
K. $\frac{3}{m}-2$

77.



Points P and Q are points on the number line above, which is divided into equal sections. What is the value of PQ?

- A. -5
B. 7
C. 30
D. 35
E. 50

78. 8:54 a.m.
9:12 a.m.
9:24 a.m.
10:24 a.m.
11:18 a.m.

Light A flashes every 12 minutes, and light B flashes every 18 minutes. The two lights flash at the same time at 8:00 a.m. At how many of the times listed above will they again both flash at the same time?

- F. 1
G. 2
H. 3
J. 4
K. 5

79. Which sum below can be expressed as a non-repeating decimal?

- A. $\frac{1}{2} + \frac{1}{6}$
B. $\frac{1}{3} + \frac{1}{4}$
C. $\frac{1}{3} + \frac{1}{5}$
D. $\frac{1}{4} + \frac{1}{5}$
E. $\frac{1}{4} + \frac{1}{6}$

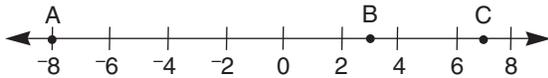
80. To paint a room, Suzanne uses blue and white paint in the ratio of blue:white = 8:3. What was the **total** number of gallons of paint used if she used 6 gallons of blue paint?

- F. $2\frac{1}{4}$ gal.
G. $8\frac{1}{4}$ gal.
H. 9 gal.
J. 16 gal.
K. 22 gal.

CONTINUE ON TO THE NEXT PAGE ►

81. A cylindrical oil drum can hold 4,320 liters when it is completely full. Currently, the drum is $\frac{1}{3}$ full of oil. How many kiloliters of oil need to be added to fill the drum completely?
- A. 1.44 kL
 B. 2.88 kL
 C. 4.32 kL
 D. 14.40 kL
 E. 28.80 kL

82.



On the number line above, A is located at -8 , B is located at 3 , and C is located at 7 . D (not shown) is the midpoint of \overline{AB} , and E (not shown) is the midpoint of \overline{BC} . What is the midpoint of \overline{DE} ?

- F. -1.5
 G. 1.25
 H. 1.75
 J. 2.25
 K. 7.5
83. A certain insect has a mass of 75 milligrams. What is the insect's mass in grams?
- A. 0.075 g
 B. 0.75 g
 C. 7.5 g
 D. 75 g
 E. 7,500 g
84. A box contains 11 marbles—7 red and 4 green. Five of these marbles are removed at random. If the probability of drawing a green marble is now 0.5, how many red marbles were removed from the box?
- F. 1
 G. 2
 H. 3
 J. 4
 K. 5

85. A water tank is $\frac{1}{3}$ full; then, 21 gallons of water are added to the tank, making it $\frac{4}{5}$ full. How many gallons of water could the tank hold if it were completely full?
- A. 35 gal.
 B. 45 gal.
 C. 56 gal.
 D. 84 gal.
 E. 105 gal.

86. RELATIONSHIP BETWEEN ROW A AND ROW B

Row A	1	2	3	4	5	6	7	8	9	10	11
Row B	1	1	2	2	3	3	4	4	5	5	6

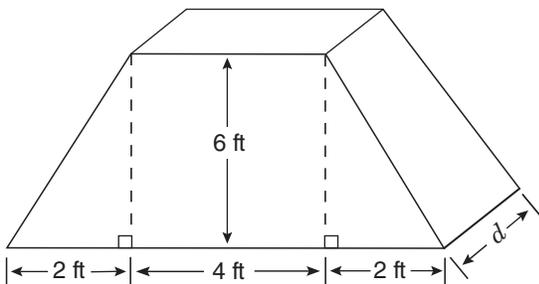
The table above shows two rows of integers, Row A and Row B, and the relationship between them. Assume each row continues in the pattern shown. When the number 111 appears in Row A, what is the corresponding number that will appear in Row B?

- F. 55
 G. 56
 H. 57
 J. 59
 K. 66
87. In a restaurant, the mean annual salary of the 4 chefs is \$68,000, and the mean annual salary of the 8 waiters is \$47,000. What is the mean annual salary of all 12 employees?
- A. \$47,000
 B. \$54,000
 C. \$55,500
 D. \$57,500
 E. \$61,000

CONTINUE ON TO THE NEXT PAGE ►

88. On the first leg of its trip, a plane flew the 900 miles from New York City to Atlanta in 2 hours. On the second leg, it flew the 1,400 miles from Atlanta to Albuquerque in $2\frac{1}{2}$ hours. How much greater was the plane's mean speed, in miles per hour, on the second leg than on the first?
- F. 110 mph
 G. 150 mph
 H. 200 mph
 J. 250 mph
 K. 500 mph

89.



The end of a tent has a trapezoidal cross-section as shown above. What is the depth (d) of the tent if its volume is 216 cubic feet?

- A. $4\frac{1}{2}$ ft
 B. 6 ft
 C. $6\frac{1}{2}$ ft
 D. 7 ft
 E. 8 ft
90. Today, Tom is $\frac{1}{4}$ of Jordan's age. In 2 years, Tom will be $\frac{1}{3}$ of Jordan's age. How old is Jordan today?
- F. 4 yr
 G. 6 yr
 H. 12 yr
 J. 16 yr
 K. 22 yr

91. How many positive two-digit numbers are evenly divisible by 4?
- A. 22
 B. 23
 C. 24
 D. 25
 E. 26

92. A steel container is shaped like a cube 10 feet on each side. This container is being filled with water at a rate of 7 cubic feet per minute. At the same time, water is leaking from the bottom of the container at a rate of 2 cubic feet per minute. If the container is exactly half-filled at 9:00 a.m., at what time will the container begin to overflow?
- F. 9:55 a.m.
 G. 10:00 a.m.
 H. 10:11 a.m.
 J. 10:40 a.m.
 K. 12:20 p.m.

93. Each week, Arnold has fixed expenses of \$1,250 at his furniture shop. It costs Arnold \$150 to make a chair in his shop, and he sells each chair for \$275. What is Arnold's **profit** if he makes and sells 25 chairs in 1 week?
- A. \$1,875
 B. \$2,500
 C. \$3,125
 D. \$3,750
 E. \$4,375

94. In how many different ways can you make exactly \$0.75 using only nickels, dimes, and quarters, if you must have at least one of each coin?
- F. 2
 G. 4
 H. 6
 J. 7
 K. 12

CONTINUE ON TO THE NEXT PAGE ►

95. $(2p + 8) - (5 + 3p) =$

- A. $3 - p$
- B. $p + 3$
- C. $5p - 3$
- D. $5p + 3$
- E. $5p + 13$

96. A 90-gram mixture contains three items, X, Y, and Z. The ratio of the weights of X and Y is 4:9, and the ratio of the weights of Y and Z is 9:5. If all of item Z were removed, what would be the new weight of the mixture?

- F. 60 g
- G. 65 g
- H. 70 g
- J. 72 g
- K. 75 g

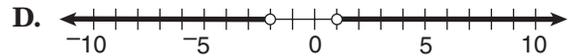
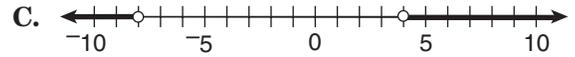
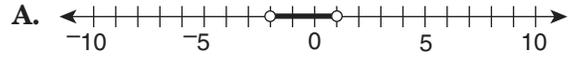
97. Maria is now 16 years old. In 6 years, she will be twice as old as her brother is then. How old is her brother now?

- A. 5
- B. 6
- C. 8
- D. 11
- E. 12

98. A car travels at 4,400 feet per minute. If the radius of each tire on the car is one foot, how many revolutions does one of these tires make in a single minute? (Use the approximation $\frac{22}{7}$ for π .)

- F. 700
- G. 1,925
- H. 13,828
- J. 15,400
- K. 27,657

99. Which number line below shows the solution to the inequality $-4 < \frac{x}{2} < 2$?



100. What is the greatest prime factor of 5,355?

- F. 17
- G. 51
- H. 119
- J. 131
- K. 153

THIS IS THE END OF THE TEST. IF TIME REMAINS, YOU MAY CHECK YOUR ANSWERS TO PART 2 AND PART 1. BE SURE THAT THERE ARE NO STRAY MARKS, PARTIALLY FILLED ANSWER CIRCLES, OR INCOMPLETE ERASURES ON YOUR ANSWER SHEET. ■

EXPLANATIONS OF CORRECT ANSWERS *continued...*

We can stop here. The question asks for the planet that travels fastest, which is also the planet farthest from Quil. That planet is Sly (Option C).

12. (G) Evaluate each option to determine the option that must be true. Options F, H, J, and K might be true, but there is not enough information given to conclude that any of them must be true. We cannot conclude that every student who received all A's plays on a team (Option F), or determine whether the best athletes always get the highest grades (Option H). Option J can be ruled out because no information is given that compares grades received by students who do or do not play on sports teams. Nor is there any information about how much time students spend studying, ruling out Option K. Only Option G must be true. A student who receives a grade of C+, which is lower than a B-, is not permitted to play.

13. (C) Draw a diagram showing the three grades and the students in each grade. There are a total of eight students, with either two or three students per grade. Two grades must have three students, and one grade must have two students, but we do not know which grades these are. Start by filling in the definite information provided in Statement 2, that Bob and Ed are both in Grade 7. Statement 1 says that Ann, Doug, and Filomena are all in different grades, but does not say which grade each student is in. Write the letter combination ADF (their initials) in each grade as a placeholder because we know that one of these three must be in each grade.

Grade	Student	Student	Student
6	ADF		
7	Bob	Ed	ADF
8	ADF		

According to Statement 3, Heidi and Carla are in the same grade. They cannot be in Grade 7—that would put five students in that grade, and the maximum number of students per grade is three. Heidi and Carla must be in either Grade 6 or Grade 8. There is no information about George. He could be in either Grade 6 or 8, whichever grade Heidi and Carla are not in. Options A, B, D, and E might be true, but none of them must be true. For example, Option A would not be true if three students (ADF, Carla, and Heidi) are in Grade 6. Only Option C must be true. Grade 7 contains Bob, Ed, and one other student (Ann, Doug, or Filomena), for a total of three students.

14. (K) Draw a diagram to help solve this problem. Write “left” on the left-hand side of your scrap paper, followed by four spaces, one for each bike. Let an initial stand for

each bike color—B, Y, G, and R. Then look for specific information about the location of a bike. The blue bike is on the extreme left (Statement 1). Fill in the left-most blank with a “B.”

Left B

Based on Statement 3, there are three possible orders. (Remember that “between” does not necessarily mean “between and next to.” Another bike could also be between the blue and yellow bikes.)

BGYR BGRY BRGY

Based on Statement 2, we can eliminate the third possible order because the red bike must be next to the yellow bike. There are now two possible orders:

BGYR BGRY

Paul’s bike is between the blue bike and the red bike. However, we can’t determine which of the two orders is correct, so his bike could be either green or yellow.

Options F, G, H, and J **might** be true, but we cannot conclude that they **must** be true. Only Option K **must** be true.

15. (A) According to the question, every millworker in Hoxie is over six feet tall and good at math. There must be other people in Hoxie besides millworkers, but we do not know how tall they are, or whether they are good at math. Option A must be true. At least some people in Hoxie (the millworkers) are over six feet tall and good at math. Options B, C, D, and E might be true, but we cannot conclude that they **must** be true.

16. (F) This question asks you to determine which of the six houses have fenced yards and which have porches. Start with the most definite information—that three houses have porches (Statement 2), and they are not next to one another (Statement 3). This creates four possible arrangements of houses with porches:

L	M	N	P	Q	R
Yes	No	No	Yes	No	Yes
Yes	No	Yes	No	No	Yes
Yes	No	Yes	No	Yes	No
No	Yes	No	Yes	No	Yes

Statement 1 says that the two houses with fenced yards are immediately next to one another. The third and fourth arrangements above do not allow this condition, because a house with a porch cannot have a fenced yard (Statement 4). Two possibilities remain, as shown below, and we cannot determine which is correct.

House	L	M	N	P	Q	R
Porch?	Yes	No	No	Yes	No	Yes
Fenced yard?	No	Yes	Yes	No	No	No

or

House	L	M	N	P	Q	R
Porch?	Yes	No	Yes	No	No	Yes
Fenced yard?	No	No	No	Yes	Yes	No

Options G, H, J, and K are true for one of the possibilities, but not the other. None of them **must** be true for both possibilities. Option F is true for both possibilities, and it is the correct answer.

17. and 18. *These directions differ from the directions for the code in Sample Form A. They state that the position of a letter is **never** the same as that of the word it represents. For example, in the first sentence, L cannot represent “Marie.” To answer these questions, you need not find out what every letter represents.*

17. (E) The word “juice” appears only once in the code, in the fourth sentence, so the letter representing “juice” must appear only in the fourth sentence. W can be ruled out because it appears in two of the statements and is in the same position as “juice.” N cannot be correct because it also appears in the second sentence, which does not contain the word “juice.” The letters Y and X appear only in the fourth sentence, but neither letter can be ruled out. Thus, the correct answer is E, “Cannot be determined from the information given.”

18. (K) The letter U appears only in the second sentence. Thus, the word it represents must appear only in the second sentence. Option F (“Sean”) is incorrect because it appears in the same position (first) as the letter U, and the directions state that the position of a letter can never be the same as the word it represents. Options G, H, and J can be ruled out because they appear in other sentences as well as the second sentence. Option K (“soda”) appears only in the second sentence and it does not appear in the same position as the letter U, so it is correct.

19. (C) Read each option to determine whether it must be true. Option A is ruled out because the question does not mention non-skydivers. The question does not state the requirements for joining the Skydiving Club (Option B), only for maintaining membership. Option C is correct; some people who are afraid of heights belong to the Skydiving Club, and these people make three jumps a month. There is no support for Option D, and Option E applies to skydivers in general, not to members of the Skydiving Club.

20. (J) One way to solve this problem is to create a grid with a row for each of the six students, in the order presented in the question. According to the conditions, two students wear glasses and three students wear school T-shirts. None of the students wearing school T-shirts is next to each other (Condition 3) and the two students wearing glasses are next to each other (Condition 1). No student wears both glasses and a school T-shirt (Condition 4). These conditions allow two possibilities:

Place in line	Name	Wearing Glasses?	Wearing school T-shirt?
1	Larnell		yes
2	Masha		
3	Nikia		yes
4	Pedro	yes	
5	Ryan	yes	
6	Sara		yes

or

Place in line	Name	Wearing Glasses?	Wearing school T-shirt?
1	Larnell		yes
2	Masha	yes	
3	Nikia	yes	
4	Pedro		yes
5	Ryan		
6	Sara		yes

There is no information to determine which possibility is correct. Check the options one by one. Options F, G, H, and K are true for one possibility but not the other, so you cannot conclude that any of them must be true. Option J is always true—Larnell and Sara wear school T-shirts in both possibilities.

READING

Foams

21. (E) Options A and C are important details, but they are not the main ideas of the passage. Option B is not discussed, and Option D does not make sense—the terms “surfactants” and “foaming agents” are synonymous. Option E is the best answer. “The formation and uses of aqueous foams” provides a good summary of the passage from beginning to end.

22. (J) The characteristic life cycle of an aqueous foam is outlined in the third paragraph. The later stages of a foam occur when the foam dries, as described beginning in line 32. As this happens, the foam’s bubbles become “polyhedrons with multiple flat surfaces” (lines 35-36), which is restated in the correct answer, Option J. Options F, G, and K occur during the early stages in a foam’s life cycle, as discussed in the second paragraph. Option H describes one property of a bubble (lines 21-22) and is not directly related to its life cycle.

23. (B) The role of the surfactant in the formation of aqueous foam is discussed in the second paragraph. Surfactants are necessary to stabilize an aqueous foam. They work by lowering the surface tension of a liquid (lines 19-21), which is Option B. Option A is not mentioned in the passage (although dispersal of a gas in the liquid is an important point). Options C and D are stages in the life cycle of a foam, not the results of a surfactant. Option E might look appealing because it refers to the formation of foam, but it incorrectly states that soap, a surfactant, is converted into foam.

24. (F) The “life cycle” of aqueous foam is outlined in the third paragraph. A “young” foam occurs early in the life cycle, in which foam is characterized by “spherical bubbles of nearly uniform size, each with a relatively thick outer film of liquid” (lines 30-32). Only Option F, “spherical bubbles,” is characteristic of a “young” foam. Options G, H, and J are characteristics of later stages. Option K is not part of the foam life cycle.

25. (A) The use of foam-based extinguishers to put out oil or gasoline fires is described in the fourth paragraph. The paragraph concludes, “these extinguishers have the advantage of minimizing the extensive water damage caused by more traditional fire-fighting methods.” Option A restates this information.

26. (F) Read all five options to choose the one that is not an ingredient of dishpan suds. Dishpan suds are mentioned as one of several examples of soap foams in lines 40-41. The second paragraph explains that soap foams consist of soap (Option H), which is a surfactant (Option K), added to an aqueous foam formed of water (Option G) and air (Option J). Option F, “protein,” is an ingredient of whipped cream and marshmallows (lines 42-44), but not of dishpan suds.

Camera

27. (D) Options A, B, and C are mentioned in passing, but none of them are the main idea of the passage. Option E is mentioned only in the last paragraph. Option D best describes what the passage is about—early versions of the concealed camera, examples of its uses, and its role in spy craft.

28. (K) The answer, Option K, is found in lines 9-11. Despite the name of the camera, amateur photographers, not detectives, used this camera.

29. (D) The correct answer, Option D, is found in lines 9-12. Early detective cameras resembled boxes (Option A), but that was not their purpose. Options B, C, and E refer to other kinds of cameras, not early detective cameras.

30. (J) According to lines 21-25, the camera with mirrors allowed the photographer to aim the camera in one direction while photographing something in another direction (Option J). Options F, G, and H refer to early detective cameras, not the camera with mirrors, which resembled an ordinary camera. Option K is not mentioned.

31. (A) The correct answer is found in lines 17-19. Option A restates the idea that people were no longer deceived by detective cameras. None of the other options are supported by the passage.

32. (G) Reread the third paragraph to understand the “idea” in line 40. The attempt to use pigeons to photograph the enemy’s army position was impractical, but the “idea behind it”—taking photographs from overhead, without detection—was practical, which is Option G. The passage gives the example of satellite-mounted cameras to illustrate its practicality. Options F and H were true for photography in general, not to “the idea” in line 40. Option J describes a use for aerial photography, not the “idea.” Option K refers to the impractical attempt, not to the idea behind it.

Marsh

33. (E) The fourth paragraph describes how Marsh began to organize his observations and write *Man and Nature* following both his time in Vermont (described in the second paragraph) and in Italy (third paragraph). Thus, the correct answer is Option E. Option D is not correct because it

mentions only Italy. There is no evidence in the passage to support Options A or C, and Option B cannot be correct because the modern environmentalist movement occurred after he wrote the book.

34. (J) Marsh attributed people’s practices to “man’s ignorant disregard for the laws of nature” (lines 31-32). “Ignorant disregard” implies lack of understanding, which is Option J. Option F is not mentioned. Option G may seem attractive, but it does not make sense—irresponsible environmental practices cannot be explained by people’s desire to keep the earth unspoiled. Marsh observed mismanagement in Vermont as well as Italy, ruling out Option H. Option K cannot be correct because the modern environmentalist movement did not begin for another one hundred years.

35. (C) Read the entire first paragraph to understand how the word “surprisingly” was used. Lines 1-8 lead the reader to expect that Marsh was part of the modern environmentalist movement that began in the 1960s. The fact that Marsh’s influential book was published 100 years earlier is unexpected and thus surprising. Option C restates that idea. The other options are contradicted by the information in the passage.

36. (H) Marsh was not optimistic about nature’s ability to heal itself (lines 43-46), ruling out Option F. Marsh’s book was influential long after his lifetime, demonstrating that his work never became outdated (Option G). Option H is correct. Marsh was considered a radical thinker (lines 76-77), implying that his ideas were unusual for his time. Marsh was not a politician (Option J) and did not desire a return to wilderness conditions, ruling out Option K.

37. (E) The sentence in lines 55-58 is a transition between Marsh’s warnings in the fifth paragraph and his positive attitude toward some, but not all, alterations to the environment presented in the sixth paragraph. In the example given, Marsh approved of the Suez Canal (lines 68-71) because its advantages—improved transportation and commerce—benefited human life. Option E best summarizes that idea. Marsh’s concerns (Option A) undermine, not support, the author’s statement in lines 55-58. Option B is not relevant to the statement, and Option C incorrectly describes Marsh as a conservationist. Option D is contradicted by lines 59-60.

38. (H) Marsh’s main contribution to the modern environmental movement is given in lines 5-7—the idea that Western society was causing irreparable harm to the environment. Option H restates that idea. Option F is incorrect because environmental damage began long before the twentieth century. Marsh’s work inspired the conservation movement which sought to preserve wilderness areas, but Marsh himself did not advocate for conservation, ruling out Option G. The growth of the conservation movement (Option J) occurred long after Marsh’s lifetime, ruling out Option J. Marsh observed serious environmental degradation in Italy as well as the United States, indicating that it was not chiefly an American problem (Option K).

Dickens

39. (D) Options A, C, and E are important details, but they are not the main ideas. Option D correctly combines the information in the passage about Dickens’ childhood and the novel *David Copperfield*. Option B might look appealing because it also contains the ideas of Dickens’ childhood and an autobiography, but his autobiography was never written, either in childhood or in adulthood.

40. (F) Dickens began writing *David Copperfield* after abandoning work on his own life story, or autobiography (lines 6-8), which is Option F. He wrote the book well into adulthood, ruling out Options G and H. The events in Options J and K never occurred.

41. (E) Dickens’ childhood is described in the second and third paragraphs. Read each option to determine whether it is a reasonable inference, based on the information in the passage. Option E is a reasonable inference, based on line 17 (Dickens was “forced to quit school”) and lines 26-27 (he was miserable at his job). Options A, B, C, and D are not supported by the passage.

42. (G) The correct answer is found in lines 10-13 and in the fourth paragraph. Dickens wrote *David Copperfield* because he was unable to complete his autobiography, and writing the novel helped him deal with painful childhood memories. Option G is the best summary. Dickens’ father had debts, not Charles Dickens himself, ruling out Option F. Options H and K are contradicted by the passage. Dickens never wrote his autobiography, eliminating Option J.

43. (C) The passage says little about the relationship between Dickens and his mother, only that Charles felt betrayed when his mother, anxious for the boy's wages, got his job back for him (lines 33-36). Option C best expresses this information. Options B and E are contradicted by the passage. The passage does not address the issues presented in Options A and D.

44. (K) The passage states, "The father, however, now sided with his son and the boy was sent back to school" (lines 37-38). In other words, Charles was able to return to school because of his father's intervention (Option K). Options F and J were obstacles, not aids, to his returning to school. Option G led to dismissal from his job, not to his return to school. Option H occurred before Dickens returned to school, but was not the direct reason for it.

Great Zimbabwe

45. (D) You are asked to identify the general topic of the passage. Options B and E refer to only parts of the passage. Option C is not mentioned at all. Option A is too broad; most of the passage is about Great Zimbabwe, not the nation of Zimbabwe. Option D, "the true story of the Great Zimbabwe ruins," is best.

46. (G) The basis for the correct answer is found in several places in the passage. First, find the section that mentions Richard Hall's opinion. Lines 52-54 state that Hall was "convinced that the structures had been built by ancient people from the Middle East." Later, Hall's opinion was discredited by archaeologists who demonstrated that Great Zimbabwe was African in origin (lines 64-65). In other words, Hall's opinion was inaccurate. All five options must be evaluated to find the option with which the passage's author would most likely agree. Option F is not correct: Hall's first impression was inaccurate. The author would not agree with Option H: the present culture of the Shona people is not illustrative of their past. The author does not take any stand on whether advanced cultures developed first in the Middle East, ruling out Option J, nor does the author claim that Middle Eastern culture was derived from Shona culture (Option K). The best answer is Option G. A preconception is an opinion formed in advance of actual knowledge, which perfectly describes Hall's belief. Hall's preconception had clouded his judgment.

47. (E) Read the entire last paragraph, which implies that discussion of "one mystery of Great Zimbabwe" has just been concluded, and the author is making a transition to another mystery. The previous paragraph showed that Great Zimbabwe was built by ancestors of the Shona people, not by people from the Middle East. Thus, the mystery that had been solved was who had built Great Zimbabwe and when (Option E). Option A is incorrect because the mystery comprised much more than the foreign wares discovered in the ruins. Option B, "why the settlement was abandoned," has not been solved. The source of gold and ivory (Option C) and the reason that Europeans did not discover Great Zimbabwe until the 1870s (Option D) are not presented as mysteries.

48. (H) The Shona people are discussed in the fifth paragraph. Since the question is open-ended, we must evaluate each option to find the best answer. The Shona people still exist as a distinct group (line 68), ruling out Option F. Shona kings traded their goods in coastal towns (lines 72-74), implying that they lived in the African interior, not the coast, eliminating Option G. Lines 65-68 state that Great Zimbabwe was most likely built by ancestors of the present-day Shona people, which supports Option H. Options J and K confuse the histories of the Shona people and ancient Middle Eastern people. Option H is the best answer.

49. (E) This statement implies that the field of archaeology was new and immature in the 1870s. The statement is followed by descriptions of how early explorers, including Richard Hall, discarded valuable archaeological material. Thus, the "infancy" of archaeology is illustrated by Option E, "the excavations conducted by Richard Hall." Options A and B are events in Shona history, not the history of archaeology, and Options C and D are references to more advanced stages of archaeology, not to its infancy.

50. (F) Each option should be evaluated in turn. Option F is correct; the Portuguese searched for Great Zimbabwe but never found it (lines 26-27). It is a good idea to read the remaining options to be sure that none of them is better than Option F. Options G, H, and K are incorrect because the Portuguese never found Great Zimbabwe or King Solomon's mines. The destruction of archaeological evidence was committed by subsequent explorers, not the Portuguese, which rules out Option J. Option F is the best answer.

$$\begin{aligned}
 51. \text{ (E)} \quad & 100(2 + 0.1)^2 - 100 \\
 & = 100(2.1)^2 - 100 \\
 & = 100(4.41) - 100 \\
 & = 441 - 100 \\
 & = 341
 \end{aligned}$$

52. (J) Since Jack scored a mean of 15 points per game in each of the first 3 games, he must have earned a total of 45 points for the first three games by definition. Use that information to calculate the mean over the four games:

$$\frac{45 + 27}{4} = \frac{72}{4} = 18$$

53. (C) To calculate the midpoint of a segment, find the mean of the endpoints (add the values of the two endpoints and divide by 2):

$$\text{Midpoint of } \overline{PQ} = \frac{2 + (-6)}{2} = -2$$

$$\text{Midpoint of } \overline{QR} = \frac{6 + 2}{2} = 4$$

To find how many units from one midpoint to the other, subtract the midpoint values:

$$4 - (-2) = 6$$

54. (F) The cost for one child's supplies is:

$$\$1.09 + 2(\$0.59) = \$2.27$$

Divide the total money available (\$15) by the cost for one child's supplies (\$2.27) to get the number of children that can be provided with the supplies: $\$15 \div \$2.27 = 6.6\dots$

You do not need to complete the division, because the number of children must be a whole number. Six children can be provided with the complete requirement of supplies.

55. (D) The quickest solution is to first "round up" from 46 hours to 48 hours, because 48 hours is 2 full days. Thus, 48 hours after 9:30 p.m. on Friday would be 9:30 p.m. on Sunday. Since the question asks for 46 hours, subtract 2 hours from 9:30 p.m. Sunday to get 7:30 p.m. Sunday.

56. (K) Since Frances' age (F) is given, use that information to find Judy's age (J):

$$J = 2F = 2 \cdot 15 = 30$$

So, Judy is 30 years old. Now, use that information to calculate Carmen's age (C):

$$C + n = J$$

$$C + n = 30$$

$$C = 30 - n$$

$$57. \text{ (B)} \quad 0.00102 = \frac{102}{N}$$

Multiply the numerator and denominator by 100,000 to remove the decimal.

$$\frac{100,000}{100,000} \cdot (0.00102) = \frac{102}{N}$$

$$\frac{102}{100,000} = \frac{102}{N}$$

$$N = 100,000$$

58. (G) The scale is 1 foot = 0.25 inch. Since the rest of the question is in inches, change the scale conversion into inches: 1 foot is equal to 12 inches, so 12 inches = 0.25 inch.

Next, set up a proportion, where x represents the scale inches for a distance of 36 inches:

$$\frac{12}{0.25} = \frac{36}{x}$$

$$12x = 36(0.25)$$

$$12x = 9$$

$$x = \frac{9}{12} = \frac{3}{4} = 0.75 \text{ in.}$$

59. (A) Since the figure is drawn to scale, use the values from the grid to solve:

$$(c, d) = (1, 3) \text{ and } (a, b) = (-2, 1)$$

$$\text{Then, } c + a = 1 + (-2) = -1, \text{ and}$$

$$d + b = 3 + 1 = 4.$$

The point $(-1, 4)$ is point R on the graph.

$$60. \text{ (H)} \quad \frac{(-51)(-51)}{17 \cdot 17 \cdot 17} = \frac{(-3)(-3)}{17} = \frac{9}{17}$$

61. (B) Use proportions to make the conversions:

Lorgs to dollars

$$\frac{140}{x} = \frac{7}{1} \quad 7x = 140 \quad x = \$20$$

Dalts to dollars

$$\frac{16}{x} = \frac{0.5}{1} \quad 0.5x = 16 \quad x = \$32$$

$$\text{Total dollars} = 20 + 32 = \$52$$

62. (G) The question asks for the number of children with blond hair or brown eyes, but **not both**. According to the chart, 18 children have blond hair and *blue* eyes, and 15 children have brown eyes and *black* hair. $18 + 15 = 33$ children with blond hair or brown eyes, but not both.

63. (B) Since 5.6 ricks and 12.88 dalts are both equal to 1 sind, then 5.6 ricks = 12.88 dalts. To calculate the number of dalts (d) in 1 rick, set up a proportion:

$$\frac{5.6}{12.88} = \frac{1}{d}$$

$$5.6d = 12.88$$

$$d = 2.3$$

64. (J) To find the median, first count the number of tests (Xs) in the figure, which is 17. The median is the middle value. The middle value of 17 is 9. Counting from the left, find the ninth X in the figure to determine the median score (80).

65. (C) To eliminate the decimals in this equation, multiply the numerators and denominators by 100:

$$\left(\frac{0.21}{0.33}\right)\left(\frac{100}{100}\right) = \left(\frac{x}{1.10}\right)\left(\frac{100}{100}\right)$$

$$\frac{21}{33} = \frac{100x}{110}$$

$$x = \left(\frac{110}{100}\right)\left(\frac{21}{33}\right) = \frac{70}{100} = 0.70$$

66. (F) It may be easier to see the order of the fractions by changing them to mixed numbers or decimals:

$$\frac{11}{3} = 3\frac{2}{3} = 3.666\dots$$

$$\frac{25}{7} = 3\frac{4}{7} = 3.57\dots$$

$$\frac{18}{5} = 3\frac{3}{5} = 3.6$$

The smallest fraction is $\frac{25}{7}$, followed by $\frac{18}{5}$, and finally $\frac{11}{3}$.

67. (E) First, find the length of \overline{PR} : $4 - (-5) = 9$ units
Point Q is located $\frac{1}{3}$ of the way from R to P, so calculate where that point would be:

$$9 \times \frac{1}{3} = 3 \text{ units}$$

So, point Q is located at $4 - 3 = 1$. Finally, calculate the midpoint of \overline{PQ} :

$$\text{Midpoint PQ} = \frac{-5 + 1}{2} = -2$$

68. (J) First, find the sale price of the dress. If it is on sale for $\frac{1}{3}$ off the original price, the sale price is $\frac{2}{3}$ of the original price: $\$450 \times \frac{2}{3} = \300

Alia has a 10% discount on the sale price. 10% of \$300 is \$30, so the discounted price will be:

$$\$300 - \$30 = \$270$$

Next, calculate the sales tax on the discounted price: $\$270 \times 0.06 = \16.20

So, the total cost that Alia pays for the dress is:

$$\$270 + \$16.20 = \$286.20$$

69. (C) The two-digit numbers must be even, so the only possible two-digit numbers must end in 8, since 8 is the only even digit given in the problem. Since the numbers cannot be repeated, the only possibilities for two-digit even numbers are 78 and 98. Thus, the answer is two possible two-digit numbers.

70. (K) The climbers started at 125 feet below sea level, which can be expressed as -125 . They stopped at 5,348 feet above sea level, which is expressed as a positive number. The elevation gain for the day is $5,348 - (-125) = 5,473$ feet.

71. (B) First, change the improper fractions into mixed numbers:

$$\frac{5}{2} = 2\frac{1}{2} \text{ and } \frac{20}{3} = 6\frac{2}{3}$$

The integers between these two values are 3, 4, 5, and 6. So, there are 4 integers between $\frac{5}{2}$ and $\frac{20}{3}$.

72. (G) Angle LKN = 75° because vertical angles are congruent. The interior angles of quadrilateral KLPN sum to 360° . So, angle LPN = $360 - (120 + 120 + 75) = 45^\circ$. Angle LPN and angle QPR are vertical angles, so $x = 45$.

73. (B) All 6 of the smaller rectangles are congruent. Let the shorter side of one of these small rectangles be x . Based on the figure, the longer side is then $4x$, because the shorter side of four rectangles stacked together is the same length as the longer side of one rectangle. Using this information, you can now figure out the length and width of WXYZ:

$$\text{Width of WXYZ} = 4x$$

$$\text{Length of WXYZ} = x + 4x + x = 6x$$

Use the area of WXYZ to calculate x :

$$(4x)(6x) = 54$$

$$24x^2 = 54$$

$$x^2 = \frac{9}{4}$$

$$x = \frac{3}{2}$$

Now that x is known, use that to find the length and width of WXYZ:

$$\text{Width of WXYZ} = 4\left(\frac{3}{2}\right) = 6$$

$$\text{Length of WXYZ} = 6x = 6\left(\frac{3}{2}\right) = 9$$

$$\begin{aligned} \text{So, the perimeter of WXYZ} &= 2(6) + 2(9) \\ &= 12 + 18 = 30 \text{ cm} \end{aligned}$$

74. (K) Since 714 is even, factor out a 2:

$714 = 2 \cdot 357$. The sum of the digits of 357 is 15, so we know 357 is a multiple of 3:

$$714 = 2 \cdot 3 \cdot 119$$

Finally, 119 is divisible by 7, so

$$714 = 2 \cdot 3 \cdot 7 \cdot 17$$

75. (B) Let x equal the number of gallons needed to drive m miles. Set up a proportion to solve for x :

$$\frac{x}{m} = \frac{3}{65}$$

$$x = \frac{3m}{65}$$

76. (G) Let c be Crystal's age:

$$3c + 2 = m$$

$$3c = m - 2$$

$$c = \frac{m - 2}{3}$$

77. (D) The line between -20 and 30 is divided into 10 sections. Calculate the length of 1 section by finding the distance between -20 and 30 , and dividing by the number of sections:

$$\frac{30 - (-20)}{10} = 5$$

So, the length of 1 section is 5 units and Point P is located at -5 . To find the value of PQ, subtract the value of P from the value of Q:

$$30 - (-5) = 35$$

78. (G) To find when the two flashes occur at the same time, find the least common multiple of 12 and 18, which is 36. Every 36 minutes, the lights flash at the same time. The first time is 8:00 a.m. The next 6 times would be 8:36, 9:12, 9:48, 10:24, 11:00, and 11:36. Only 2 of those times are listed (9:12 a.m. and 10:24 a.m.).

79. (D) Of the fractions listed in the options ($\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{5}$, and $\frac{1}{6}$), $\frac{1}{3}$ and $\frac{1}{6}$ are the only fractions that can be written as repeating decimals. Adding a non-repeating decimal to a repeating decimal will result in a repeating decimal. Thus, the correct answer must contain two non-repeating decimals, which is option D: $\frac{1}{4} + \frac{1}{5}$

80. (G) Create a proportion to calculate the total number of gallons of paint used:

$$\frac{\text{Gallons of blue}}{\text{total gallons}} = \frac{8}{8 + 3} = \frac{6}{x}$$

$$8x = 6(11)$$

$$x = 8\frac{1}{4} \text{ gallons}$$

81. (B) First, find the number of liters that need to be added:

$$\frac{2}{3} \cdot 4,320 = 2,880 \text{ liters}$$

Use the conversion 1 kiloliter = 1,000 liters to find the number of kiloliters:

$$\frac{2,880}{1,000} = 2.88 \text{ kL}$$

82. (G) First, calculate the midpoints of \overline{AB} and \overline{BC} to find the locations of D and E, respectively:

$$D = \frac{-8 + 3}{2} = -\frac{5}{2}$$

$$E = \frac{3 + 7}{2} = 5$$

Now, find the midpoint of \overline{DE} :

$$\frac{-\frac{5}{2} + 5}{2} = \frac{\frac{5}{2}}{2} = \frac{5}{4} = 1.25$$

83. (A) One gram is equal to 1,000 milligrams, or

1 milligram is equal to $\frac{1}{1,000}$ gram.

Thus, 75 milligrams = $\frac{75}{1,000} = 0.075$ gram.

84. (J) There were 11 marbles in the box. After 5 were removed, the total number of marbles in the box is now 6. The probability of drawing a green marble is now $\frac{1}{2}$, which is equivalent to $\frac{3}{6}$. Thus, 3 green marbles remain in the box. Originally, there were 4 green marbles in the box, so only 1 green marble was removed. Since a total of 5 marbles were removed from the box, that means 4 of those marbles were red.

85. (B) Let x be the number of gallons of water the tank holds when completely full. Use the information in the first sentence to set up the equation:

$$\frac{4}{5}x = \frac{1}{3}x + 21$$

$$\frac{12}{15}x - \frac{5}{15}x = 21$$

$$7x = 15 \cdot 21$$

$$x = 45 \text{ gallons}$$

86. (G) In row B, a number appears twice—first under an odd number in row A, and then under the next even number in row A. So, the number 112 in row A would have a corresponding number 56 in row B. The numbers 111 and 112 in row A would both have 56 under them in row B.

87. (B) To find the mean salary for all 12 employees, find the sum for each group. Thus, 4 people earned a total of \$272,000 and 8 people earned a total of \$376,000. Use the mean formula:

$$272,000 + 376,000 = \frac{648,000}{12} = \$54,000$$

88. (F) To find the speed of the plane, divide the miles travelled by the number of hours:

First leg: 900 miles \div 2 hours = 450 mph

Second leg: 1,400 miles \div $2\frac{1}{2}$ hours = 560 mph

The question asks how much greater the speed was in the second leg than in the first, so subtract: $560 - 450 = 110$ mph

- 89. (B)** Because the volume of the tent is calculated using the area of the cross-section \times depth (d), you can also use this formula to find d .

The area of the cross-section is the sum of the areas of the two triangles and the rectangle.

The two triangles have the same base length (2 ft) and height (6 ft), so the area of one of the triangles is:

$$A = \frac{1}{2} \times 2 \times 6 = 6 \text{ sq ft}$$

The area of the center rectangle is:

$$A = 4 \times 6 = 24 \text{ sq ft}$$

So the total area of the cross-section is:

$$A = 6 + 6 + 24 = 36 \text{ sq ft}$$

Use that to calculate the depth of the tent:

$$V = 36d$$

$$216 = 36d$$

$$6 = d$$

- 90. (J)** First, set up an equation to express Tom's age (T) and Jordan's age (J) today:

$$T = \frac{1}{4}J$$

Two years from now, Tom's age will be $T + 2$ and Jordan's age will be $J + 2$. Use that information and the information from the second sentence in the question to set up an equation about the relationship between Tom's age and Jordan's age in two years:

$$T + 2 = \frac{1}{3}(J + 2)$$

Simplify the above equation for T:

$$T = \frac{1}{3}(J + 2) - 2$$

Now, set the two equations equal to each other and solve for J:

$$\frac{1}{4}J = \frac{1}{3}(J + 2) - 2$$

$$\frac{1}{4}J = \frac{1}{3}J - \frac{4}{3}$$

Multiply both sides of the equation by the common denominator (12):

$$12\left(\frac{1}{4}J\right) = 12\left(\frac{1}{3}J - \frac{4}{3}\right)$$

$$3J = 4J - 16$$

$$J = 16$$

- 91. (A)** The question asks for the number of positive two-digit numbers evenly divisible by 4. The smallest such number is 12 (4×3), and the largest is 96 (4×24). Thus, the two-digit numbers evenly divisible by 4 are 4×3 , 4×4 , 4×5 , and so on up to 4×24 .

To find how many such numbers there are, subtract the lowest value from the greatest value: $24 - 3 = 21$.

However, since each endpoint is included (4×3 and 4×24), add 1 to that value to get the exact count of the numbers: $21 + 1 = 22$

- 92. (J)** The volume of the container is $10 \times 10 \times 10 = 1,000$ cubic feet. Since it is already half full at 9:00 a.m., it will begin to overflow after 500 cubic feet of water is added to it.

7 cubic feet of water are being added per minute, but 2 cubic feet of water leak out per minute. That means $7 - 2 = 5$ cubic feet of water are being added to the tank each minute.

$$500 \text{ cubic feet} \div 5 \text{ cubic feet per minute} = 100 \text{ minutes}$$

100 minutes is equal to 1 hour 40 minutes.

1 hour 40 minutes after 9:00 a.m. is 10:40 a.m.

- 93. (A)** Each chair costs Arnold \$150 to make, and he sells the chair for \$275. His profit is found by subtracting the cost from the price:

$$\$275 - \$150 = \$125 \text{ per chair}$$

If Arnold makes and sells 25 chairs in a week, his initial profit is $25 \cdot \$125 = \$3,125$. However, Arnold has additional fixed expenses of \$1,250 per week, so this cost must also be subtracted. Thus, his final profit is:

$$\$3,125 - \$1,250 = \$1,875$$

94. (H) The question asks for the number of different ways to create \$0.75 using at least one of each coin. One of each coin (one quarter, one dime, one nickel) is $\$0.25 + \$0.10 + \$0.05 = \0.40 . Thus, the first \$0.40 of any solution is already determined. Subtract \$0.40 from \$0.75 ($\$0.75 - \$0.40 = \$0.35$), so the question becomes “how many different ways can you make \$0.35 using nickels, dimes, and quarters?” There are 6 ways to create \$0.35 using nickels, dimes and quarters:

- 7 nickels
- 5 nickels + 1 dime
- 3 nickels + 2 dimes
- 1 nickel + 3 dimes
- 1 quarter + 1 dime
- 1 quarter + 2 nickels

95. (A) $(2p + 8) - (5 + 3p) = 2p + 8 - 5 - 3p = 3 - p$

96. (G) The ratios of X:Y and Y:Z can be combined because Y has the same value in both ratios. So, X:Y:Z = 4:9:5. The proportion of X and Y in the mixture is $\frac{4 + 9}{4 + 9 + 5} = \frac{13}{18}$. Multiply the total weight of the mixture by the proportion to find the weight of the mixture after Z has been removed: $90 \times \frac{13}{18} = 65$ g

97. (A) If Maria is 16 now, in 6 years she will be 22. Since she will then (in 6 years) be twice as old as her brother, he will be 11 (in 6 years). To find his present age, subtract 6 from 11. Thus, he is now 5 years old.

98. (F) One revolution is equal to the circumference of the tire:

$$C = 2r\pi = 2(1)\left(\frac{22}{7}\right) = \frac{44}{7} \text{ feet}$$

The car travels at 4,400 feet per minute. To calculate the number of revolutions, divide the speed by the circumference:

$$4,400 \div \frac{44}{7} = 4,400 \cdot \frac{7}{44} = 700 \text{ revolutions}$$

99. (E) First, multiply each term by 2 to eliminate the fraction:

$$\begin{aligned} -4(2) < \left(\frac{x}{2}\right)(2) < 2(2) \\ -8 < x < 4 \end{aligned}$$

Therefore, x must be between -8 and 4 , which is Option E.

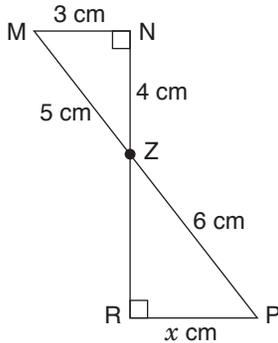
100. (F) First, find the prime factorization of 5,355:
 $5,355 = 5 \cdot 1,071 = 5 \cdot 9 \cdot 119 = 3 \cdot 3 \cdot 5 \cdot 7 \cdot 17$
 The greatest prime factor is 17.

Answer Key for Sample Form B

Paragraph 1 S R T U Q	11. C	20. J	29. D	38. H	47. E	56. K	65. C	74. K	83. A	92. J
Paragraph 2 R Q T U S	12. G	21. E	30. J	39. D	48. H	57. B	66. F	75. B	84. J	93. A
Paragraph 3 S U R Q T	13. C	22. J	31. A	40. F	49. E	58. G	67. E	76. G	85. B	94. H
Paragraph 4 Q S R U T	14. K	23. B	32. G	41. E	50. F	59. A	68. J	77. D	86. G	95. A
Paragraph 5 S U T Q R	15. A	24. F	33. E	42. G	51. E	60. H	69. C	78. G	87. B	96. G
	16. F	25. A	34. J	43. C	52. J	61. B	70. K	79. D	88. F	97. A
	17. E	26. F	35. C	44. K	53. C	62. G	71. B	80. G	89. B	98. F
	18. K	27. D	36. H	45. D	54. F	63. B	72. G	81. B	90. J	99. E
	19. C	28. K	37. E	46. G	55. D	64. J	73. B	82. G	91. A	100. F

DIRECTIONS: This section provides sample mathematics problems for the Grade 9 test forms. These problems are based on material included in the New York City curriculum for Grade 8. (The Grade 8 problems on sample forms A and B cover mathematics material through Grade 7.) General directions for how to answer math questions are located on pages 52 and 90. There is no sample answer sheet for this section; mark your answers directly on this page or on a separate piece of paper.

1.



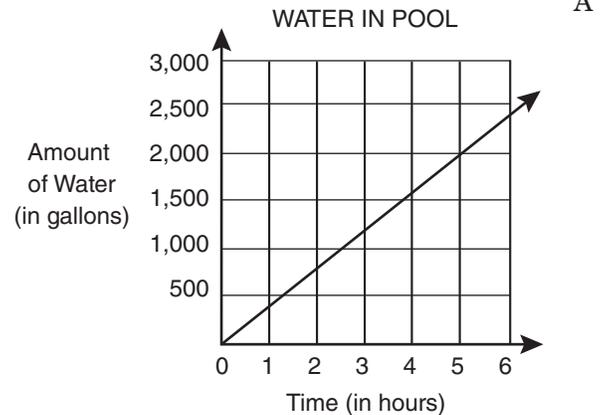
In the figure above, all lines are straight. \overline{MP} and \overline{RN} intersect at point Z. What is the value of x ?

- A. 3
- B. $3\frac{3}{5}$
- C. 4
- D. $4\frac{4}{5}$
- E. 5

2. The translation of point P (3, 5) to P' (5, -3) is equivalent to rotating point P by which of the following clockwise rotations about the origin?

- F. 45°
- G. 90°
- H. 135°
- J. 180°
- K. 225°

3.



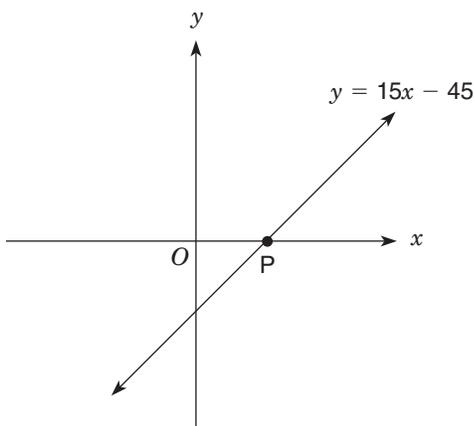
swimming pool is being filled with water at a constant rate. The figure above is a portion of a graph that shows how the number of gallons of water in the pool changes over time. Starting with an empty pool, at the end of hour 5 there are 2,000 gallons in the pool. If the pool continues to fill at this rate, how much water will be in the pool at the end of hour 20? (Assume that the pool holds a total of 100,000 gallons.)

- A. 5,600 gal.
- B. 6,000 gal.
- C. 8,000 gal.
- D. 40,000 gal.
- E. 80,000 gal.

4. If $(4^3)(8^2) = 2^x$, what is the value of x ?

- F. 12
- G. 10
- H. 7
- J. 6
- K. 5

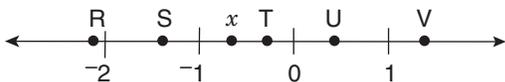
5.



The line defined by the equation $y = 15x - 45$ intercepts the x -axis at point P as shown above. What are the coordinates of point P?

- A. (45, 0)
- B. (3, 0)
- C. (-3, 0)
- D. (0, -3)
- E. (0, -45)

6.



On the number line above, which letter could represent the location of x^2 ?

- F. R
- G. S
- H. T
- J. U
- K. V

7. If $(12.6 \times 10^{18}) - (1.1 \times 10^{17}) = k \times 10^{19}$, what is the value of k ?

- A. 0.016
- B. 1.150
- C. 1.249
- D. 11.500
- E. 16.000

8.

STUDENTS OWNING PETS

Number of Pets Owned	Number of Students
0	5
1	7
2	3
3	4
4	0
5	1

There are 20 students in a class. The frequency table above shows the number of these students that own 0, 1, 2, 3, 4, or 5 pets. What is the mean number of pets owned per student in this class?

- F. $1\frac{1}{2}$
- G. 3
- H. $3\frac{1}{3}$
- J. 4
- K. 5

9. The temperature inside an oven when it is off is 60°F . When Gail turns the oven on, it heats at a constant rate, reaching a temperature of 350°F in 5 minutes. Which equation indicates the temperature (y) of the oven x minutes after it is turned on?

- A. $y = 5x + 60$
- B. $y = 60x + 350$
- C. $y = 58x + 60$
- D. $y = 70x + 60$
- E. $y = 350x + 58$

10.

$$|x - 1| < 3$$

$$|x + 2| < 4$$

How many integer values of x satisfy both inequalities shown above?

- F. 0
- G. 1
- H. 3
- J. 4
- K. 5

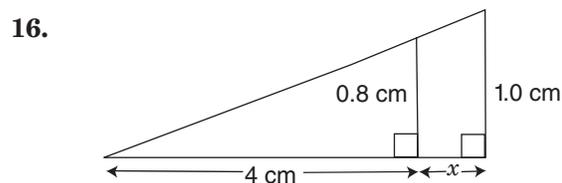
11. $\frac{p}{q}, p + q, p - q, p^2 + q^2, \frac{p^2}{q^2}$
- If $p = q = \frac{1}{\sqrt{2}}$, which one of the expressions above does **not** represent a rational number?
- A. $\frac{p}{q}$
 B. $p + q$
 C. $p - q$
 D. $p^2 + q^2$
 E. $\frac{p^2}{q^2}$

12. Let $(x, y) \rightarrow (x + 10, y - 10)$. Using that rule, if $(n, r) \rightarrow (100, 100)$, what is (n, r) ?
- F. (90, 90)
 G. (90, 110)
 H. (100, 100)
 J. (110, 90)
 K. (110, 110)

13. Seven consecutive integers are arranged in increasing order. Their sum is $7k$. What is the value of the second integer in terms of k ?
- A. $k - 6$
 B. $k - 2$
 C. k
 D. $k + 1$
 E. $7k - 6$

14. Define the operation \square as follows:
 $a \square \left(\frac{b}{c}\right) = \frac{a}{\left(\frac{b}{c}\right)}$, where b and c are not zero.
- If $2 \square \left(\frac{4}{x}\right) = \frac{3}{2}$, what is the value of x ?
- F. 1
 G. 2
 H. 3
 J. 6
 K. 12

15. Raul has two containers. One is a cylinder with an inner radius of 4 inches and an inner height of 8 inches. The other is a cube with inner height, width, and length each equal to 8 inches. The cylinder is filled with water and the cube is empty. If Raul pours the contents of the cylinder into the cube, how deep will the water be in the cube?
- A. 2 in.
 B. $\frac{2}{3}\pi$ in.
 C. 4 in.
 D. 2π in.
 E. 4π in.



In the figure above, what is the value of x ?

- F. 1 cm
 G. 1.2 cm
 H. 3.2 cm
 J. 4 cm
 K. 5 cm
-
17. Straight line k passes through the point $(-3, 4)$ with an x -intercept of 3. What is the equation of line k ?
- A. $y = -\frac{3}{2}x + 3$
 B. $y = -\frac{2}{3}x - 3$
 C. $y = -\frac{2}{3}x + 2$
 D. $y = -\frac{1}{3}x + 3$
 E. $y = \frac{2}{3}x - 2$

1. (B) Each triangle is a right triangle, and the angles formed at point Z are congruent because they are vertical angles. Thus, the two triangles are similar by definition. Set up the following proportion between similar sides to find x :

$$\frac{5}{3} = \frac{6}{x}$$

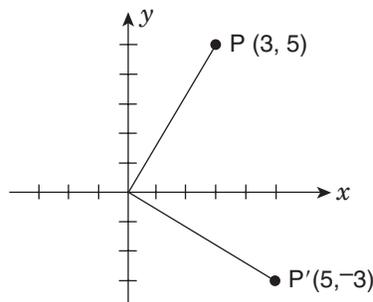
$$5x = 18$$

$$x = \frac{18}{5} = 3\frac{3}{5}$$

2. (G) If the coordinates of a point labeled R are (a, b) , then a 90° counterclockwise rotation about the origin would make the coordinates of point R' $(-b, a)$. A 90° clockwise rotation about the origin would make the coordinates of R' $(b, -a)$.

In the question, P is $(3, 5)$ and P' is $(5, -3)$. Using the rule stated above, P' is the image after point P is rotated 90° clockwise.

Alternatively, it may help to make a sketch of this problem. Place the two points on the coordinate grid: Point P is in the first quadrant, and point P' is in the fourth quadrant. Draw a line from each point to the origin. The angle formed at the origin should resemble a right angle, which is option G (90°).



3. (C) At the beginning (hour 0), the pool is empty. After 5 hours, the pool holds 2,000 gallons. Thus, the rate of change (or slope of the line) is $\frac{2,000 - 0}{5 - 0} = \frac{2,000}{5} = 400$ gallons per hour.

To find the number of gallons after 20 hours, multiply the rate by the number of hours:
 $400 \times 20 = 8,000$ gallons.

4. (F) Begin by finding a common base for each term. In this case, the common base is 2.

$$4 = 2^2$$

$$8 = 2^3$$

$$(4^3)(8^2) = (2^2)^3(2^3)^2$$

$$= (2^6)(2^6)$$

$$= 2^{12}$$

So, $x = 12$.

Alternatively, you could multiply the left side of the equation and then factor it:

$$(4^3)(8^2) = (4 \times 4 \times 4)(8 \times 8)$$

$$= (2 \times 2 \times 2 \times 2 \times 2 \times 2)(2 \times 2 \times 2 \times 2 \times 2 \times 2)$$

$$= 2^{12}$$

5. (B) Since P is on the x -axis, we know its y -value must equal 0. Use that in the equation to solve for x :

$$y = 15x - 45$$

$$0 = 15x - 45$$

$$45 = 15x$$

$$3 = x$$

So, the coordinates for P are $(3, 0)$.

6. (J) Since x is a negative number between -1 and 0 , assign a value to x in that range and calculate x^2 . For example, let $x = -\frac{2}{3}$. Then $x^2 = \frac{4}{9}$, which roughly corresponds to point U.

7. (C) In order to add or subtract two numbers in scientific notation, the exponent on the 10 must be the same. Since the question asks for the value of $k \times 10^{19}$, change both terms into this same power of 10:

$$12.6 \times 10^{18} = (1.26 \times 10) \times 10^{18} = 1.26 \times 10^{19}$$

$$1.1 \times 10^{17} = (0.011 \times 10^2) \times 10^{17} = 0.011 \times 10^{19}$$

Now, perform the subtraction:

$$(1.26 \times 10^{19}) - (0.011 \times 10^{19})$$

$$= (1.26 - 0.011) \times 10^{19}$$

$$= 1.249 \times 10^{19}$$

Thus, $k = 1.249$

8. (F) First, determine the total number of pets that the students own by multiplying the number of pets owned by the number of students in each row of the table. Then add that column to get the total number of pets.

Number of Pets Owned	Number of Students	Number of Pets × Number of Students
0	5	0
1	7	7
2	3	6
3	4	12
4	0	0
5	1	5

Total: 30

Now, calculate the mean by dividing the total number of pets owned by the total number of students:

$$\frac{30}{20} = 1\frac{1}{2}$$

9. (C) Since y is temperature and x is time, we can set up two points with the given information. The first point (0, 60) is when the oven is off. The second point (5, 350) indicates when the oven reaches the temperature of 350° which occurs after 5 minutes. Use these two points to find the slope (m) of the line:

$$m = \frac{350 - 60}{5 - 0} = \frac{290}{5} = 58$$

The first point (0, 60) indicates that the y -intercept (b) is 60.

Using slope-intercept form ($y = mx + b$), the equation is $y = 58x + 60$.

10. (H) First, determine which integer values of x would make each inequality true:

$|x - 1| < 3$ can also be written as

$$-3 < x - 1 < 3$$

Add 1 to each term to simplify the inequality
 $-2 < x < 4$

Since these are only “less than” and not “less than or equal to,” the possible values of x for this inequality are -1, 0, 1, 2, and 3.

Similarly, $|x + 2| < 4$ can also be written as
 $-4 < x + 2 < 4$

Subtract 2 from each term to simplify the inequality

$$-2 < x < 2$$

The possible values of x in this inequality are -1, 0, and 1.

The possible x values in common between the two inequalities are -1, 0, and 1, so the answer is 3.

11. (B) A rational number is a number that can be written as a fraction. Since $p = q$, then $\frac{p}{q} = 1$, $\frac{p^2}{q^2} = 1$, and $p - q = 0$, all of which are rational. That leaves two expressions to test:

$$p + q = \frac{1}{\sqrt{2}} + \frac{1}{\sqrt{2}} = \frac{2}{\sqrt{2}}$$

(irrational because $\sqrt{2}$ is irrational)

$$p^2 + q^2 = \left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{1}{\sqrt{2}}\right)^2 = \frac{1}{2} + \frac{1}{2} = 1 \text{ (rational)}$$

Thus, $p + q$ is not a rational expression.

12. (G) Using the translation equation given in the question, set up two small equations to find n and r :

For n :

$$x + 10 = 100$$

$$x = 90$$

For r :

$$y - 10 = 100$$

$$y = 110$$

So, $(n, r) = (90, 110)$

13. (B) The question asks for the second integer, so let n be the second integer. Then, the sum of the 7 integers is:

$$\begin{aligned}(n-1) + n + (n+1) + (n+2) + (n+3) + \\ (n+4) + (n+5) &= 7k \\ 7n + 14 &= 7k \\ 7(n+2) &= 7k \\ n+2 &= k \\ n &= k-2\end{aligned}$$

14. (H) Since $a \propto \frac{b}{c}$ then $2 \propto \frac{4}{x}$

$$\begin{aligned}\frac{2}{\left(\frac{4}{x}\right)} &= \frac{3}{2} \\ 4 &= 3\left(\frac{4}{x}\right) \\ 4 &= \frac{12}{x} \\ 4x &= 12 \\ x &= 3\end{aligned}$$

15. (D) First, calculate the volume of the cylinder:

$$V = \pi r^2 h = \pi(4)^2(8) = 128\pi \text{ cubic inches}$$

The volume of water in the cube will be the same as the volume of water in the full cylinder. Use the volume formula of a cube to calculate the depth (h) of the water in the cube:

$$\begin{aligned}V &= lwh \\ 128\pi &= (8)(8)h \\ 128\pi &= 64h \\ 2\pi &= h\end{aligned}$$

16. (F) Because both triangles are right triangles that share a vertex, they are similar. To find x , set up a proportion using the two known sides of each triangle:

$$\begin{aligned}\frac{(4+x)}{1.0} &= \frac{4}{0.8} \\ 0.8(4+x) &= 4 \\ 4+x &= 5 \\ x &= 1\end{aligned}$$

17. (C) An x -intercept of 3 means the point (3, 0) is on line k . Using (3, 0) and (-3, 4), calculate the slope (m) of the line:

$$m = \frac{(4-0)}{(-3-3)} = \frac{4}{-6} = -\frac{2}{3}$$

The equation of line k must contain slope $-\frac{2}{3}$, so only Options B and C are potentially correct.

Next, find which of the two equations is true for the point (3, 0). To solve, substitute 3 for x in each equation and find the one in which $y = 0$.

$$\text{Option B: } y = -\frac{2}{3}(3) - 3 = -2 - 3 = -5$$

$$\text{Option C: } y = -\frac{2}{3}(3) + 2 = -2 + 2 = 0$$

Option C is the correct answer.

Answer Key for Grade 9 Mathematics

1. B	7. C	13. B
2. G	8. F	14. H
3. C	9. C	15. D
4. F	10. H	16. F
5. B	11. B	17. C
6. J	12. G	

