

PSAT/NMSQT®

CollegeBoard

NATIONAL MERIT
SCHOLARSHIP CORPORATION



Fall 2019

PSAT/NMSQT®

Preliminary SAT/National Merit Scholarship Qualifying Test

Student Guide



PSAT/NMSQT®
information



Test-taking
advice and tips



An official
practice test



**FLIP THIS
BOOK
OVER**

FOR
INFORMATION
ABOUT THE
NATIONAL MERIT®
SCHOLARSHIP PROGRAM

About College Board

College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, College Board was created to expand access to higher education. Today, the membership association is made up of over 6,000 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, College Board helps more than seven million students prepare for a successful transition to college through programs and services in college readiness and college success—including the SAT® and the Advanced Placement Program®. The organization also serves the education community through research and advocacy on behalf of students, educators, and schools. For further information, visit collegeboard.org.

About National Merit Scholarship Corporation (NMSC)

NMSC is an independent, not-for-profit organization that operates without government assistance. NMSC conducts the National Merit® Scholarship Program, an annual academic competition for recognition and college scholarships. The PSAT/NMSQT is the screening test for high school students who wish to participate in the National Merit Scholarship Program.

If you have questions about any aspect of the National Merit Scholarship Program, including student participation requirements, the selection process, and awards offered, see the NMSC section on the flip side of this publication.

The PSAT/NMSQT

The Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT®) is co-sponsored by College Board and National Merit Scholarship Corporation. It is administered for College Board and National Merit Scholarship Corporation by Educational Testing Service (ETS). Contact the PSAT/NMSQT office if you have suggestions, questions, or comments about test registration, administration, or score reports. If you wish to withdraw your answer sheet from scoring, or if you wish to report test administration irregularities, you must notify the test coordinator or the PSAT/NMSQT office immediately.

PSAT/NMSQT Customer Service

You can reach us from 8 a.m. (9 a.m. mid-June to September) to 7 p.m. Eastern Time, Monday to Friday.

PHONE: 866-433-7728

INTERNATIONAL: +1-212-713-8105

EMAIL: psathelp@info.collegeboard.org

MAIL: PSAT/NMSQT

P.O. Box 6720

Princeton, NJ 08541-6720

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Using This Guide

Taking the PSAT/NMSQT® is a great way to find out how ready you are for college and career.

The PSAT/NMSQT is also the qualifying test for entry to the National Merit® Scholarship Program (described on the flip side of this guide). Just as important, taking the PSAT/NMSQT connects you to College Board programs and services that can propel you toward the opportunities you've earned through your own hard work. We've created this guide to help you:

- Become familiar with the test so that you're not surprised or confused on test day. A complete practice test is included in this guide.
- Learn the test directions. The directions for answering the questions in this guide are the same as those on the actual test.
- Review the sample questions. The more familiar you are with the question formats, the more comfortable you'll feel when you see similar questions on the actual test. In particular, be sure to practice writing answers to the student-produced response questions on the Math Test later in this guide. Find additional sample questions at psat.org.
- Understand how the tests are scored.
- Be aware of what you need to know about taking this test. Terms and conditions and other test security and fairness policies can be found after the sample questions.

PSAT/NMSQT Test Dates and Fee

Here are the test dates for 2019:

- **Primary Test Date:** Wednesday, October 16
- **Saturday Test Date:** Saturday, October 19
- **Alternate Test Date:** Wednesday, October 30

The fee for the 2019 PSAT/NMSQT is \$17, but you might not have to pay it—some schools cover all or part of the cost for their students. Schools sometimes charge an additional fee for administrative costs. Juniors from income-eligible families may be able to get fee waivers from College Board.

What the PSAT/NMSQT Measures

The PSAT/NMSQT is focused on the skills and knowledge at the heart of education. It measures:

- What you learn in high school.
- What you need to succeed in college and career training.

The same habits and choices that lead to success in school will help you get ready for the PSAT/NMSQT. The best way to prepare for the test is to:

- Take challenging courses.
- Do your homework.
- Prepare for tests and quizzes.
- Ask and answer lots of questions.

How the PSAT/NMSQT Is Organized

The PSAT/NMSQT has three tests: the Reading Test, the Writing and Language Test, and the Math Test. The tests break down like this:

Component	Time Allotted (min.)	Number of Questions
Reading	60	47
Writing and Language	35	44
Math	70	48
Total	165	139

As part of scoring, every test goes through an equating process. Equating is a statistical process we use to ensure that scores mean the same thing no matter which version of the test you take or when you take it. In order to assist with future testing, College Board may conduct research studies in connection with the testing of a subset of students.

Also, the test occasionally includes test questions for research purposes. These questions may appear in any of the test sections, and testing time will be extended by 20 minutes so students have time to answer them. These questions will not be included in computing your scores. Students must complete all sections of the test. If you leave before dismissal, your scores will be canceled.

How the PSAT/NMSQT Is Scored

All multiple-choice questions are scored the same way: one point for each correct answer and zero points for incorrect answers. No points are subtracted for incorrect answers or answers left blank. Hard questions count the same as easier questions. You won't lose any points for guessing, so try to answer every question. The table below shows you all the scores you'll receive on the PSAT/NMSQT.

PSAT/NMSQT Score Reported	Details	Score Range
Total Score	Sum of the two section scores	320–1520
Section Scores (2)	<ul style="list-style-type: none"> ▪ Evidence-Based Reading and Writing ▪ Math 	160–760
Test Scores (3)	<ul style="list-style-type: none"> ▪ Reading ▪ Writing and Language ▪ Math 	8–38
Cross-Test Scores (2)	<ul style="list-style-type: none"> ▪ Analysis in History/Social Studies ▪ Analysis in Science <p>Based on selected questions in the Reading Test, Writing and Language Test, and Math Test. These scores show how well you use your skills to analyze texts and solve problems in these subject areas.</p>	8–38
Subscores (7)	<ul style="list-style-type: none"> ▪ Reading and Writing and Language: Command of Evidence and Words in Context ▪ Writing and Language: Expression of Ideas and Standard English Conventions ▪ Math: Heart of Algebra, Problem Solving and Data Analysis, and Passport to Advanced Math 	1–15
NMSC Selection Index Score	National Merit Scholarship Corporation (NMSC) uses this score (calculated by doubling the sum of the Reading, Writing and Language, and Math Test scores) as an initial screen of entrants to its National Merit Scholarship Program.	48–228

What Scores You Will Receive

Your paper score report will include a total score, section scores, and test scores. The online score report will include cross-test scores and subscores as well. You'll be able to see not only how you did overall, but also where your strengths are and where you need to improve. Once you get your score report, visit studentscores.collegeboard.org to learn more about what these scores mean.

Your score report will include the NMSC Selection Index score, which NMSC uses as an initial screen of entrants to its National Merit Scholarship Program.

For further information about the Selection Index score, see the National Merit Scholarship Program section on the flip side of this guide.

Your score report also includes a message about your potential for success in AP® courses based on your scores. There's also some helpful advice about when to take the SAT®.

Scores will be available online. (If you provide your email address on the answer sheet, you'll receive an email letting you know when your scores are ready.) Paper score reports will be sent to schools a few weeks after online scores are available. If you haven't received your score report by mid-January, see your counselor. Your school will be able to print a copy for you.

Before Test Day

Create a College Board Account

Once you create a free College Board account, you can:

- Access your PSAT/NMSQT scores when they become available.
- Sign up for free, personalized practice through Official SAT Practice and Khan Academy®.

Just visit collegeboard.org and click “Sign Up” to get started.

If You Need Testing Accommodations

If you have a disability that requires accommodations such as braille, extra breaks, or permission to test blood sugar, be sure to have your school request College Board approval well in advance of the test date you need the accommodations for. Requests for accommodations are handled by the Services for Students with Disabilities (SSD) office.

Applying for Accommodations

- Work with your school’s SSD coordinator or counselor for accommodations. Your SSD coordinator can help determine what accommodations are best for you and submit a request online.
- If you move to a new school after you’ve been approved for accommodations, your new school needs to confirm your continued eligibility. Print your SSD eligibility letter from your student account to give to your new school.
- If you are approved for extended time for specific subject areas (math, for example), you’ll only get those accommodations on the relevant sections or tests.
- Talk to your SSD coordinator before test day to confirm what accommodations you are approved for and any additional information you need for testing.
- Bring your SSD eligibility letter with you on test day in case there are any questions.
- If you are interested in participating in the National Merit Scholarship Program and do not receive accommodations for which you are approved or do not receive approval in time for the test, please contact NMSC immediately but no later than November 15, 2019 (see inside front cover for contact information).

Student Search Service

Nearly 1,900 eligible colleges, universities, scholarships, and other educational programs use our Student Search Service® to look for students who match a range of factors—such as the area where you live or go to school, the interests you pursue, and what you plan to study in college. Here are some key facts about the service:

- You can join for free and directly hear from a diverse group of eligible colleges, universities, scholarships, and other educational programs.
- When you take a College Board test, you can opt in so eligible colleges, universities, scholarships, and other educational programs can send you information. You’ll be asked to provide information about yourself when filling out the answer sheet. You may also provide additional information on College Board’s college planning website, BigFuture™, at bigfuture.org.
- Only eligible colleges, universities, scholarships, and other educational programs can participate. They most often search on expected graduation date, cumulative grade point average (GPA), and intended college major.
- We never sell or share your test scores, grades, disability status, or telephone numbers.
- We don’t allow any commercial advertising.

How Student Search Service Works

Once you opt in, you can expect to receive emails and postal mail from eligible colleges, universities, scholarships, and other educational programs in your city, state, or country, or from around the world. All of the colleges and universities that you’ll hear from welcome students just like you on their campuses. They may send you:

- Information on financial aid, scholarships, or other ways to make college or university more affordable.
- Details on campus life and student services.
- Overviews of majors, courses, and degree options.

Being contacted by a college or university doesn’t mean you’ve been admitted. You must submit an application to be considered for admission. The eligible colleges, universities, scholarships, and other educational programs that participate want to find students who will succeed and thrive on their campus and in classes, programs, scholarships, and special activities. Student Search Service is simply a way for eligible colleges and universities to reach prospective

students to let them know about the opportunities they offer. For more information about Student Search Service, visit our site at studentsearchservice.org.

If at any time you change your mind and want to stop participating, please visit studentsearch.collegeboard.org/opt-out or contact us at SearchCustomerService@collegeboard.org or 866-825-8051. Please note that any participating eligible colleges, universities, scholarships, or other educational programs that have already received your name and other data may continue to send you information, but your information will not be included going forward from the time you elect to opt out.

Scholarship Opportunities

You already know that taking the PSAT/NMSQT can enter you into the National Merit Scholarship Program. But do you know about the other opportunities available to you by taking the test?

If you take the PSAT/NMSQT as a junior and qualify for participation, the following programs may help you prepare for college. If you do not want your name, scores, and other information released to them, write to the PSAT/NMSQT office by **October 31, 2019** (see inside front cover for address).

- The **National Hispanic Recognition Program (NHRP)** identifies outstanding Hispanic/Latino students and shares information about them with interested colleges and universities. To be eligible, you must be at least one-quarter Hispanic/Latino (as defined by the NHRP), meet a minimum PSAT/NMSQT cutoff score for your state, and have a minimum grade point average.

College Board
National Hispanic Recognition Program
250 Vesey Street
New York, NY 10281-6992
866-545-8467
NHRP@scholarshipamerica.org

- The **National Scholarship Service (NSS)** offers a free college advisory and referral service for 11th-grade African American students. Scores will be sent for juniors who indicate on their answer sheets that they are African American or black.

National Scholarship Service
980 Martin Luther King Drive SW
P.O. Box 11409
Atlanta, GA 30310

- **Telluride Association** is a program offering summer seminars in the humanities and social sciences to highly gifted juniors.

Telluride Association
217 West Avenue
Ithaca, NY 14850
607-273-5011

College Board also partners with several other programs that provide millions of dollars in scholarships to qualified students. Help them find you by opting in to Student Search Service when you take the PSAT/NMSQT.

The following eligible programs are scholarship partners as of spring 2019; please check psat.org/scholarships for updates.

- American Indian Graduate Center (aigcs.org)
- Asian & Pacific Islander American Scholarship Fund (apiasf.org)
- Boettcher Foundation (boettcherfoundation.org/colorado-scholarships)
- Children of Fallen Patriots (CFP) (fallenpatriots.org)
- Cobell Scholarship (cobellscholar.org)
- Coca-Cola Scholars Foundation (coca-colascholarsfoundation.org)
- Daniels Fund (danielsfund.org)
- George Snow Scholarship Fund (scholarship.org)
- Greenhouse Scholars (greenhousescholars.org)
- Hispanic Scholarship Fund (hsf.net)
- Horatio Alger Association (horatioalger.org)
- Jack Kent Cooke Foundation (jkcf.org)
- The Jackie Robinson Foundation (jackierobinson.org)
- Marine Corps Scholarship Foundation (mcsf.org)
- Ron Brown Scholar Program (ronbrown.org)
- TheDream.US (thedream.us)
- United Negro College Fund (uncf.org)
- Washington State Opportunity Scholarship (waopportunityscholarship.org)

How to Prepare

The PSAT/NMSQT measures the knowledge and skills you have developed in reading, writing and language, and math. This test is not about memorizing words and facts you will never use again. Instead, it focuses on what you have already learned in school and what you will need to succeed in college and career. It measures your reasoning and critical-thinking skills, which will be important to you through high school, college, and beyond.

This guide includes the following to help you prepare:

- Advice, sample passages, and sample questions for the Reading Test and the Writing and Language Test
- Advice, sample questions, and calculator information for the Math Test
- PSAT/NMSQT Practice Test #1, a full-length practice test
- Information about the National Merit Scholarship Program (on the flip side of this guide)

You can also go online for more help and information:

- Go to collegeboard.org/psatpractice for additional sample questions, practice test answer explanations, and another full-length practice test (Practice Test #2). Practice tests in MP3 audio and assistive technology compatible formats are also available on this website. If you are approved for another format, such as braille, a practice test may be sent to your school, or you can call 212-713-8333 to request a practice test in a specific format.
- Go to psat.org/scoring for more information about scoring and free, personalized practice from Khan Academy.

Instant Practice Test Scoring with Scan and Score

Take the PSAT/NMSQT on paper to simulate test day. Then take a picture of your answer sheet and get an instant score.

Here's how Scan and Score works:

1. Use the PSAT/NMSQT Practice Test #1 included in this guide or download and print Practice Test #2 from psat.org/practice (select **Take the Practice Test** under “Paper-and-Pencil Practice”). Be sure to follow the instructions, and use the official answer sheet to bubble in your answers.
2. After you've finished the practice test, get instant feedback and question-by-question results from your phone. Just open the free app Daily Practice for the New SAT. (Go to psat.org/psatscoring for more information.)
3. Keeping the app open, snap a picture of your answer sheet with your phone's camera.

And there it is in seconds: your score. Scores are saved so you can track your progress.

On Test Day

Items to Bring for Testing

What to Bring

- Acceptable photo ID in case you need it (see sat.org/id for more information)
- Two No. 2 pencils with soft erasers
- An acceptable calculator for use on the Math Test – Calculator portion of the test (see Calculator Use)
- Earphones, only if you're approved for assistive technology-compatible or MP3 audio accommodations and the school doesn't provide earphones

Nice to Have

- A watch (without an audible alarm or communication/recording capabilities; smartwatches may be collected before testing)
- A bag or backpack (which must be stored away during testing)
- Snacks and drinks (which must be under your desk during testing)
- Extra batteries and backup calculator

What Not to Bring

Unless you have been approved to use a specific device or aid (such as a blood-sugar-monitoring application, highlighter, or colored pen or pencil) as an accommodation, you should not bring any prohibited devices or aids into the testing room. Prohibited devices and aids include, but aren't limited to:

- Cell phones, smartphones, or wearable technology (phones and wearable technology may be collected before the test and returned before dismissal)
- Audio players/recorders
- Tablets, laptops, notebooks, Bluetooth, or any other personal computing devices
- Separate timers of any type
- Cameras or any other photographic equipment
- Smartwatches and any other devices that can be used to record, transmit, receive, or play back audio, photographic, text, or video content
- Highlighters, colored pens/pencils, or mechanical pencils
- Dictionaries or other books
- Compasses, rulers, protractors, or cutting devices
- Pamphlets or papers of any kind, including notes and scratch paper
- Earplugs

IMPORTANT: Epinephrine auto-injectors (e.g., EpiPens) are permitted in the testing room without the need for accommodations. They must be placed in a clear bag and stored under your desk during testing. (For other medical devices, you may need to request an accommodation.)

What to Do If...

You know in advance that you cannot take the test on the date your school offers it: Tell your counselor as soon as possible that you have a conflict, such as a religious observance. You may be able to take the test at a nearby school that has selected a different test date. If you test at another school, be sure to take your school code and an acceptable photo ID with you.

You are homeschooled and want to take the PSAT/NMSQT: Make arrangements in advance with your local school or another nearby school that is administering the test. (For a list of schools in your area, go to ordering.collegeboard.org/testordering/publicSearch.) If this is not possible, contact the PSAT/NMSQT office (see inside cover).

You will be studying in another country when the test is given: Contact the PSAT/NMSQT office and provide the name of the city and country and, if known, the name and address of the school you will be attending when the test is given. The PSAT/NMSQT office will send you instructions.

You missed the test but want to enter scholarship and recognition programs: For information about another route of entry to the National Merit Scholarship Program, see the box on page 7 of the flip side of this guide.

Test Security and Fairness Policies

College Board's Test Security and Fairness policies are designed to give every student a fair and equitable opportunity to demonstrate their skills and knowledge. They're also designed to prevent anyone from gaining an unfair advantage on College Board tests. When you take the PSAT/NMSQT, you acknowledge that you have read, understand, and will comply with our Test Security and Fairness policies as detailed here.

- You must present acceptable photo ID for admission if any school staff member asks you to.

- Allowing someone to impersonate you to take a College Board test, or engaging in impersonation to take a test for someone else, is strictly prohibited.
- Creating a disturbance or failing to follow instructions given by testing staff is prohibited.
- Sharing test questions or answers is prohibited at any time unless test content is released as part of a College Board service.
- Using phones and certain other electronic devices is prohibited in PSAT/NMSQT test sites. Staff at your test site may collect devices such as cell phones and smartwatches before testing begins. If you are observed with such a device after collection occurs, you will be dismissed from testing and your scores will be canceled.
- You are prohibited from accessing secured test materials at any time before or after the test.
- If you exit the building before testing ends, your scores may be canceled.
- While you're taking the test, do not allow anyone to see the test questions or your answers.
- The timing of each test section is strictly scheduled. You cannot skip ahead or go back to a previous test or test section in the test book or answer sheet while taking the PSAT/NMSQT.
- You may not consult notes, other people, electronic devices, or any other resources during the test or during breaks.
- Calculators may not be shared, and may only be on your desk during the parts of the PSAT/NMSQT they're approved for.
- You may take the PSAT/NMSQT only once each school year. If you begin a test, you are considered to have taken it.
- All students in your school must take the test at the same time. (Exceptions may be approved for students with disabilities.)
- If you become ill or must leave during the test, or if for any other reason you do not want your test scored, you may ask the proctor or test coordinator to withdraw your answer sheet from scoring before you leave the testing room. After you leave the testing room, if you decide to withdraw your answer sheet from scoring you must report your decision immediately to the test coordinator or the PSAT/NMSQT office. (See the inside front cover for contact information.)
- Members of your household or immediate family may not serve as PSAT/NMSQT coordinators or any other role that has access to test books before test day, even at a different school, during the year that you take the test. (Immediate family includes

one's parents, siblings, children, grandparents, and spouse. This applies even if they do not reside in the same household.) A proctor may not administer the test to a member of their family or household.

- You may not discuss the contents of the test with anyone, or share them through any means, including but not limited to emails, text messages, and the internet, until after score reports have been distributed.

Violation of policies related to test security can result in denial of entry to or immediate dismissal from the test site, cancellation of your scores, or a limited or permanent ban from any College Board assessment, including the SAT, SAT Subject Tests™, and the Advanced Placement® exams.

Please read the PSAT/NMSQT Terms and Conditions later in this guide for important information about your rights and responsibilities as a test taker.

Phones and Electronic Devices Policy

Devices that can be used to document or communicate test content or answers are not allowed at the test site. You may not bring electronics of any kind other than approved calculators with you on test day (an exception may apply for medically required devices). If, however, you forget to leave a device at home, you'll be instructed to turn off all electronic devices. The staff in your testing room may collect cell phones and wearable technology before the test begins. Be sure to turn off your phone and/or watch alarm, if you have one or both.

If your device makes noise (even if collected by the proctor), you will get a warning and be told to turn it off. However, if you are seen with it at any time, including during breaks, you will be dismissed immediately, your scores will be canceled, and the device may be kept and its contents inspected. College Board is not responsible for loss of or damage to personal items, including electronic devices, while you're at the test site.

College Board regularly bolsters its security efforts in order to protect the integrity of the test and ensure a fair PSAT/NMSQT administration. From time to time, College Board, Educational Testing Service (ETS), and its testing staff may employ enhanced security measures, such as the use of metal detecting wands to detect mobile phones and other electronic devices. Test takers should be prepared to undergo these security measures to ensure a fair testing environment.

Depending on your school's policy, the test administration staff may be authorized to collect and hold phones and other prohibited electronic devices during the test administration, including break periods, or to deny admission to anyone in possession of a prohibited electronic device.

Taking the Test

Testing Guidelines

- Plan ahead and bring equipment that's in good working order. Testing staff may not have extra batteries or calculators.
 - When marking answers:
 - ◆ Use a No. 2 pencil with a soft eraser on all parts of the answer sheet. Do not use a pen or mechanical pencil.
 - ◆ Make sure you fill in the entire bubble darkly and completely.
 - ◆ Erase any changes you make as completely as possible.
 - On the PSAT/NMSQT, there's no penalty for guessing; you simply earn points for the questions you answer correctly. Try to give your best answer to every question—there's no advantage to leaving them blank.
 - Use a watch to time yourself—no separate timers or alarms are allowed, as they distract other test takers. Choose a watch that doesn't have advanced communication or recording features (these are not allowed).
 - Don't skip sections, and don't leave your answer sheet blank. Doing this could result in score cancellation and/or delays.
 - Store any snacks or drinks you bring out of sight in a paper bag under your desk. You may only eat snacks during breaks. The testing staff will tell you where you can go to have your snack.
 - If you're testing where the staff doesn't know you, keep your ID with you at all times, especially if you leave the testing room.
- If you're using a calculator with a large (characters one inch high or more) or raised display that might be visible to other test takers, the proctor may move you to another seat.

Calculator Rules

You can only use certain kinds of calculators, as explained in the Math Test portion of this guide. Here are the other rules to bear in mind:

- You can't share your calculator.
 - If you use your calculator to share or exchange information during the test, or to remove test questions or answers from the test room, you'll be dismissed and your scores canceled.
- We share scores with you, your school, and, if applicable, your district and/or state to help measure educational progress and support a student's path to college. (Homeschooled students' scores won't be shared with the school that administers the test.)
 - If students request it, we use their information to send customized college planning information.
 - We share a limited amount of personal data with our partners for test administration support, customer support, and to support scoring and reporting activities.
 - On our website, we use student information to customize and personalize the content users see, such as important reminders about PSAT/NMSQT test dates and college-planning milestones.
 - We share de-identified student information with researchers so they can study it for College Board programs and services that help solve education issues.

Protecting Your Privacy: Use of Student Information

College Board recognizes the importance of protecting your privacy. See collegeboard.org/privacy-policy for complete data privacy information.

College Board collects personal information only to administer tests and deliver educational opportunities to students. College Board lets students and families decide how much additional information they disclose beyond the minimum information needed to connect students with college success, including taking the PSAT/NMSQT.

On the answer sheet, we ask students for their name, school information, student ID number, grade level, gender, and date of birth. We may also ask for other information, including address, email address, and mobile phone number. Sometimes, schools, districts, or states will give us students' personal information to register the students for College Board tests. Schools may share students' names, addresses, dates of birth, and gender, and in certain circumstances other information about students to help College Board determine if they qualify for fee waivers. Students provide any remaining personal information themselves.

We only share student information for educational purposes (or under court order) as follows:

- Students' use of Khan Academy practice resources will be governed by the Terms and Conditions on the Khan Academy website.

As co-sponsors of the PSAT/NMSQT, College Board and NMSC receive the scores of students who take the test as well as the information that students provide on their answer sheets. NMSC will use only the information that is relevant in the administration of the National Merit Scholarship Program.

Some schools, districts, and states receive PSAT/NMSQT scores with other information about their students. In addition, scores for students who qualify for programs described in Scholarship Opportunities are given to those programs. The PSAT/NMSQT Program does not report scores to colleges or commercial entities.

See more Privacy Policies later in this guide.

Telemarketing Scams

We sometimes get reports of phone scams when callers posing as employees of College Board or National Merit Scholarship Corporation (NMSC) try to sell test preparation products or request sensitive, personally identifying information, such as credit card and Social Security numbers. College Board and NMSC do not make unsolicited phone calls or send emails to students or families requesting this type of information. This type of activity, known as telemarketing fraud, is a crime.

After Test Day

Test Fairness Review

All new PSAT/NMSQT test questions and complete new editions of the tests are reviewed by external, independent educators from throughout the United States. These reviews help ensure that the questions are unambiguous and relevant and that the language used is not offensive to or inappropriate for any particular group of students based on race/ethnicity or gender. Assessment staff ensure that the test as a whole includes references to men and women as well as to individuals from varied racial, ethnic, and cultural backgrounds. Statistical procedures are used to identify questions that are harder for a group of students to answer correctly than would be expected from their performance on other questions in the test; these questions are excluded from appearing on tests.

Test Question Inquiries

If you find what you consider to be an error or an ambiguity in a test question, tell the test coordinator immediately after the test. You may also write to:

Assessment Design and Development
College Board
250 Vesey Street
New York, NY 10281

Or send an email to psatquestion@collegeboard.org.

In your inquiry, provide your name and mailing address, the date you took the PSAT/NMSQT, the name and address of the school where you took the test, the test section, the test question (as well as you can remember), and an explanation of your concern about the question.

The PSAT/NMSQT Program will send you a written response after your inquiry has been reviewed thoroughly by subject-matter specialists.

IMPORTANT: *We will not respond via email, so be sure to include your full name and mailing address.*

Useful Resources

We offer resources to help you find the best college and career for you, including:

BigFuture—Our website helps you plan for college and find the college that's best for you. Visit bigfuture.collegeboard.org.

Roadmap to Careers—Want to see how your interests can connect to careers in your future? Try this great online experience powered by our partnership with Roadtrip Nation. Visit collegeboard.roadtripnation.com.

Evidence-Based Reading and Writing

The Evidence-Based Reading and Writing section is composed of two tests that assess different but related skills and knowledge. The Reading Test gives you a chance to show how well you understand what you read. The Writing and Language Test asks you to revise and edit text.

Reading Test Overview

- Total questions: 47 passage-based reading questions with multiple-choice responses.
- Time allotted: 60 minutes.
- Calculators may not be used or be on your desk.
- The questions often include references to direct you to relevant part(s) of the passage(s).

What the Reading Test Is Like

When you take the Reading Test, you'll read passages and interpret informational graphics. Then you'll use what you've read to answer questions. Some questions ask you to locate a piece of information or an idea stated directly. But you'll also need to understand what the author's words or a graphic's data imply.

What You'll Read

To succeed in college and career, you'll need to apply reading skills in all sorts of subjects. You'll also need those skills to do well on the Reading Test.

Reading Test passages range in length from about 500 to 750 words and vary in complexity. The Reading Test includes:

- One passage from a classic or contemporary work of U.S. or world literature.
- One passage or a pair of passages from either a U.S. founding document (such as an essay by James Madison) or a text in the Great Global Conversation (such as a speech by Nelson Mandela).
- One passage on a social science topic from a field such as economics, psychology, or sociology.
- Two science passages (or one passage and one passage pair) that examine foundational concepts or recent developments in Earth science, biology, chemistry, or physics.
- Two passages accompanied by one or more informational graphics.

What the Reading Test Measures

The Reading Test measures skills and knowledge you'll need to apply when reading in college and workforce training programs. The test will ask you to find and interpret information and ideas, analyze how texts are put together and why they're written the way they are, work with data from informational graphics, and make connections between paired passages.

You'll be asked questions that require you to draw on the reading skills and knowledge needed most to succeed in the subjects the passages are drawn from. For instance, you might read about an experiment and then see questions that ask you to examine hypotheses, interpret data, or consider implications.

Answers are based only on the content stated in or implied by the passages and in any supplementary material, such as tables and graphs.

Command of Evidence

Some questions ask you to:

- Find evidence in a passage (or pair of passages) that best supports the answer to a previous question or serves as the basis for a reasonable conclusion.
- Identify how authors use (or fail to use) evidence to support their claims.
- Locate or interpret data in an informational graphic, or understand a relationship between a graphic and the passage it's paired with.

Words in Context

Some questions focus on important, widely used words and phrases that you'll find in texts in many different subjects. The words and phrases are ones that you'll use in college and the workplace long after test day.

The Reading Test focuses on your ability to:

- Figure out the meaning of words or phrases in context.
- Decide how an author's word choice shapes meaning, style, and tone.

Analysis in History/Social Studies and in Science

You'll be asked to read and analyze passages about topics in history/social studies and science.

Tips for the Reading Test

To answer each question, consider what the passage or passages say directly, and use careful reasoning to draw supportable inferences and conclusions from the passage(s). The best answer to each question is derived from what is stated or implied in the passage(s) rather than from prior knowledge of the topics covered. All of the questions are passage based.

- Reading carefully is the key to finding the best answer to each question. The information you need to answer each Reading Test question is always in the passage(s). Don't be misled by an answer that looks correct but isn't supported by the actual text of the passage(s).
- The questions don't increase in difficulty from easy to hard. Instead, they are presented as logically as possible, with general questions about central ideas and themes, point of view, overall text structure, and the like coming early in the sequence. After that come more specific questions about such matters as facts, details, and words in context.
- Stay with a passage until you have answered as many questions as you can before you proceed to the next passage. Don't jump from passage to passage.
- The questions often include references to help direct you to relevant part(s) of the passage(s). You may

have to look elsewhere in the passage, however, in order to find the best answer to the question.

- In your test booklet, mark each question you skip so that you can easily go back to it later if you have time.
- Remember that all questions are worth one point regardless of the type or difficulty. You don't lose points for guessing wrong, so you should try to answer each question as best you can.

Sample Reading Test Materials

Following are samples of the kinds of passages and questions that may appear on the Reading Test. For each set of sample materials:

- Read the passage(s) and any supplementary material carefully.
- Decide on the best answer to each question.
- Read the explanation for the best answer to each question and for the answer you chose (if the two are different).

On the actual test, each passage will be followed by 9 or 10 questions. The directions that follow match the directions on the actual test.

DIRECTIONS

Each passage or pair of passages below is followed by a number of questions. After reading each passage or pair, choose the best answer to each question based on what is stated or implied in the passage or passages and in any accompanying graphics (such as a table or graph).

Questions 1-4 are based on the following passage.

This passage is adapted from Edith Wharton, *Ethan Frome*, originally published in 1911. Mattie Silver is Ethan's household employee.

Line Mattie Silver had lived under Ethan's roof for a year,
and from early morning till they met at supper he
had frequent chances of seeing her; but no moments
in her company were comparable to those when,
5 her arm in his, and her light step flying to keep time
with his long stride, they walked back through the
night to the farm. He had taken to the girl from the
first day, when he had driven over to the Flats to
meet her, and she had smiled and waved to him from
10 the train, crying out, "You must be Ethan!" as she
jumped down with her bundles, while he reflected,
looking over her slight person: "She don't look much
on housework, but she ain't a fretter, anyhow." But
it was not only that the coming to his house of a bit
15 of hopeful young life was like the lighting of a fire
on a cold hearth. The girl was more than the bright
serviceable creature he had thought her. She had an
eye to see and an ear to hear: he could show her things
and tell her things, and taste the bliss of feeling
20 that all he imparted left long reverberations and
echoes he could wake at will.

It was during their night walks back to the farm
that he felt most intensely the sweetness of this
communion. He had always been more sensitive
25 than the people about him to the appeal of natural
beauty. His unfinished studies had given form to this
sensibility and even in his unhappiest moments field
and sky spoke to him with a deep and powerful

persuasion. But hitherto the emotion had remained
30 in him as a silent ache, veiling with sadness the
beauty that evoked it. He did not even know whether
any one else in the world felt as he did, or whether
he was the sole victim of this mournful privilege.
Then he learned that one other spirit had trembled
35 with the same touch of wonder: that at his side, living
under his roof and eating his bread, was a creature to
whom he could say: "That's Orion down yonder; the
big fellow to the right is Aldebaran, and the bunch
of little ones—like bees swarming—they're the
40 Pleiades . . ." or whom he could hold entranced before
a ledge of granite thrusting up through the fern
while he unrolled the huge panorama of the ice age,
and the long dim stretches of succeeding time. The
fact that admiration for his learning mingled with
45 Mattie's wonder at what he taught was not the least
part of his pleasure. And there were other sensations,
less definable but more exquisite, which drew them
together with a shock of silent joy: the cold red of
sunset behind winter hills, the flight of cloud-flocks
50 over slopes of golden stubble, or the intensely blue
shadows of hemlocks on sunlit snow. When she said
to him once: "It looks just as if it was painted!" it
seemed to Ethan that the art of definition could go no
farther, and that words had at last been found to utter
55 his secret soul. . . .

As he stood in the darkness outside the church
these memories came back with the poignancy of
vanished things. Watching Mattie whirl down the
floor from hand to hand he wondered how he could
60 ever have thought that his dull talk interested her.
To him, who was never gay but in her presence, her
gaiety seemed plain proof of indifference. The face
she lifted to her dancers was the same which, when
she saw him, always looked like a window that has
65 caught the sunset. He even noticed two or three
gestures which, in his fatuity, he had thought she
kept for him: a way of throwing her head back when
she was amused, as if to taste her laugh before she
let it out, and a trick of sinking her lids slowly when
70 anything charmed or moved her.

1

Over the course of the passage, the main focus of the narrative shifts from the

- A) reservations a character has about a person he has just met to a growing appreciation that character has of the person's worth.
- B) ambivalence a character feels about his sensitive nature to the character's recognition of the advantages of having profound emotions.
- C) intensity of feeling a character has for another person to the character's concern that that intensity is not reciprocated.
- D) value a character attaches to the wonders of the natural world to a rejection of that sort of beauty in favor of human artistry.

Estimated Difficulty: Medium	Key: C
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Choice C is the best answer. The first paragraph traces the inception of Ethan's feelings for Mattie: Ethan "had taken to the girl from the first day" (lines 7-8) and saw her arrival as "like the lighting of a fire on a cold hearth" (lines 15-16). The second paragraph (lines 22-55) focuses on "their night walks back to the farm" (line 22) and Ethan's elation in perceiving that "one other spirit . . . trembled with the same touch of wonder" that characterized his own (lines 34-35). In other words, the main focus of the first two paragraphs is the intensity of feeling one character, Ethan, has for another, Mattie. The last paragraph shifts the focus of the passage to Ethan's change in perception; he sees Mattie in a social setting interacting with other men, wonders "how he could ever have thought that his dull talk interested her" (lines 59-60), interprets her seeming happiness as "plain proof of indifference" toward him (line 62), and sees betrayal in the "two or three gestures which, in his fatuity, he had thought she kept for him" (lines 65-67).

Choice A is incorrect because while Ethan acknowledges that Mattie "don't look much on housework" (lines 12-13), the first paragraph also notes that Ethan "had taken to the girl from the first day" (lines 7-8); therefore, there is no support for the notion that Ethan's "reservations" about Mattie lasted for any length of time or ever constitute the main focus of the narrative.

Choice B is incorrect because while Ethan does exhibit ambivalence about his sensitive nature, seeing it as a "mournful privilege" (line 33), the main focus of the narrative does not shift to his recognition of the advantages of having profound emotions. Indeed, in the last paragraph, Ethan's profound emotions give him only grief, as he sees Mattie seemingly rejecting him.

Choice D is incorrect because while the second paragraph (lines 22-55) does discuss in depth the value Ethan attaches to natural beauty, nothing in the passage signifies that he has rejected natural beauty in favor of human artistry. The closest the passage comes to this is in line 52, in which Mattie is said to have likened a natural scene to a painting, an assertion with which Ethan agrees.

2

In the context of the passage, the author's use of the phrase "her light step flying to keep time with his long stride" (lines 5-6) is primarily meant to convey the idea that

- A) Ethan and Mattie share a powerful enthusiasm.
- B) Mattie strives to match the speed at which Ethan works.
- C) Mattie and Ethan playfully compete with each other.
- D) Ethan walks at a pace that frustrates Mattie.

Estimated Difficulty: Easy	Key: A
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Choice A is the best answer. The author uses the phrase mainly to introduce a topic discussed at length in the second paragraph (lines 22-55)—namely, the growing connection Ethan sees himself forming with Mattie over the course of many evening walks during which they share similar feelings for the wonders of the natural world. In the context of the passage, the phrase evokes an image of two people walking eagerly and in harmony.

Choice B is incorrect because while the phrase literally conveys Mattie's attempts to keep up with Ethan's pace, the phrase relates to times of leisure during which Ethan and Mattie walk arm-in-arm (see lines 1-7) rather than times of work. Moreover, the phrase is used primarily in a figurative way to suggest shared enthusiasm (see explanation for choice A).

Choice C is incorrect because while the phrase literally describes Mattie's attempts to keep up with Ethan's pace, the context makes clear that Mattie and Ethan are not in competition with each other; instead, they are enjoying times of leisure during which the two walk arm-in-arm (see lines 1-7). Moreover, the phrase is used primarily in a figurative way to suggest shared enthusiasm (see explanation for choice A).

Choice D is incorrect because while the phrase in isolation could be read as conveying some frustration on the part of Mattie, who had to expend extra effort to keep up with Ethan's pace, the context makes clear that Mattie is not annoyed with Ethan but is instead enjoying times of leisure during which the two walk arm-in-arm (see lines 1-7). The phrase is used primarily to suggest shared enthusiasm (see explanation for choice A).

3

The description in the first paragraph indicates that what Ethan values most about Mattie is her

- A) fitness for farm labor.
- B) vivacious youth.
- C) receptive nature.
- D) freedom from worry.

Estimated Difficulty: Easy	Key: C
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Choice C is the best answer. Lines 9-16 mention many of Mattie's traits: she is friendly ("smiled and waved"), eager ("jumped down with her bundles"), easygoing ("she ain't a fretter"), and energetic ("like the lighting of a fire on a cold hearth"). However, the trait that appeals the most to Ethan, as suggested by it being mentioned last in the paragraph, is her openness to the world around her: "She had an eye to see and an ear to hear: he could show her things and tell her things, and taste the bliss of feeling that all he imparted left long reverberations and echoes he could wake at will" (lines 17-21).

Choice A is incorrect because the passage suggests that Ethan does not actually view Mattie as particularly well suited to farm labor. When first seeing Mattie, Ethan thinks to himself, after "looking over her slight person," that "she don't look much on housework" (lines 12-13).

Choice B is incorrect because the passage suggests that Mattie's youth is not what Ethan values most about Mattie. Although the passage does note that "the coming to his house of a bit of hopeful young life was like the lighting of a fire on a cold hearth" (lines 14-16), the narrator goes on to note that "the girl was more than the bright serviceable creature [Ethan] had thought her" (lines 16-17), indicating that Ethan values something more in Mattie than simply her vivacity.

Choice D is incorrect because although Ethan acknowledges that Mattie "ain't a fretter" (line 13), there is no evidence that Mattie's freedom from worry is what Ethan values most about Mattie. The first paragraph lists several positive traits that Mattie has, with the most emphasis being placed on her openness to the world around her (see explanation for choice C).

4

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 1-7 ("Mattie . . . farm")
- B) Lines 7-13 ("He had . . . anyhow")
- C) Lines 13-16 ("But it . . . hearth")
- D) Lines 17-21 ("She had . . . will")

Estimated Difficulty: Easy	Key: D
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Choice D is the best answer. Lines 17-21 explain that Mattie "had an eye to see and an ear to hear: [Ethan] could show her things and tell her things, and taste the bliss of feeling that all he imparted left long reverberations and echoes he could wake at will." In other words, Mattie is open, or receptive, to ideas and experiences, and the placement of this point at the end of the list of traits Ethan admires ("But it was not only . . .") suggests that her openness is most important to him. Therefore, these lines serve as the best evidence for the answer to the previous question.

Choice A is incorrect because lines 1-7 only describe Ethan and Mattie's living situation and indicate that Ethan enjoys walking with her in the evenings. They do not indicate which quality of Mattie's Ethan values the most. Therefore, these lines do not serve as the best evidence for the answer to the previous question.

Choice B is incorrect because lines 7-13 only indicate Ethan's first impression of Mattie. Mattie comes across as generally friendly and enthusiastic in their first encounter, but it is not these qualities that Ethan values the most. Therefore, these lines do not serve as the best evidence for the answer to the previous question.

Choice C is incorrect because lines 13-16 only convey that there was something special about Mattie beyond her friendliness and enthusiasm. They do not indicate what Ethan values the most about Mattie. Therefore, these lines do not serve as the best evidence for the answer to the previous question.

Questions 5-9 are based on the following passage and supplementary material.

This passage is adapted from Ed Yong, "Turtles Use the Earth's Magnetic Field as Global GPS." ©2011 by Kalmbach Publishing Co.

In 1996, a loggerhead turtle called Adelita swam across 9,000 miles from Mexico to Japan, crossing the entire Pacific on her way. Wallace J. Nichols tracked this epic journey with a satellite tag. But Adelita herself had no such technology at her disposal. How did she steer a route across two oceans to find her destination?

Nathan Putman has the answer. By testing hatchling turtles in a special tank, he has found that they can use the Earth's magnetic field as their own Global Positioning System (GPS). By sensing the field, they can work out both their latitude and longitude and head in the right direction.

Putman works in the lab of Ken Lohmann, who has been studying the magnetic abilities of loggerheads for over 20 years. In his lab at the University of North Carolina, Lohmann places hatchlings in a large water tank surrounded by a large grid of electromagnetic coils. In 1991, he found that the babies started swimming in the opposite direction if he used the coils to reverse the direction of the magnetic field around them. They could use the field as a compass to get their bearing.

Later, Lohmann showed that they can also use the magnetic field to work out their position. For them, this is literally a matter of life or death. Hatchlings born off the sea coast of Florida spend their early lives in the North Atlantic gyre, a warm current that circles between North America and Africa. If they're swept towards the cold waters outside the gyre, they die. Their magnetic sense keeps them safe.

Using his coil-surrounded tank, Lohmann could mimic the magnetic field at different parts of the Earth's surface. If he simulated the field at the northern edge of the gyre, the hatchlings swam southwards. If he simulated the field at the gyre's southern edge, the turtles swam west-northwest. These experiments showed that the turtles can use their magnetic sense to work out their latitude—their position on a north-south axis. Now, Putman has shown that they can also determine their longitude—their position on an east-west axis.

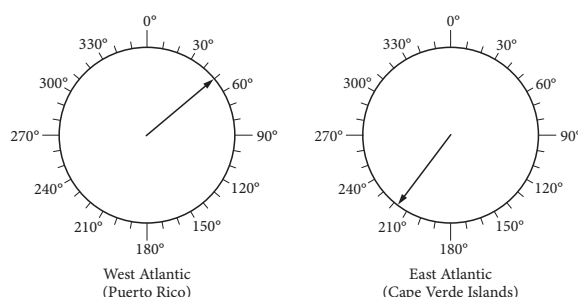
He tweaked his magnetic tanks to simulate the fields in two positions with the same latitude at opposite ends of the Atlantic. If the field simulated

the west Atlantic near Puerto Rico, the turtles swam northeast. If the field matched that on the east Atlantic near the Cape Verde Islands, the turtles swam southwest. In the wild, both headings would keep them within the safe, warm embrace of the North Atlantic gyre.

Before now, we knew that several animal migrants, from loggerheads to reed warblers to sparrows, had some way of working out longitude, but no one knew how. By keeping the turtles in the same conditions, with only the magnetic fields around them changing, Putman clearly showed that they can use these fields to find their way. In the wild, they might well also use other landmarks like the position of the sea, sun and stars.

Putman thinks that the turtles work out their position using two features of the Earth's magnetic field that change over its surface. They can sense the field's inclination, or the angle at which it dips towards the surface. At the poles, this angle is roughly 90 degrees and at the equator, it's roughly zero degrees. They can also sense its intensity, which is strongest near the poles and weakest near the Equator. Different parts of the world have unique combinations of these two variables. Neither corresponds directly to either latitude or longitude, but together, they provide a "magnetic signature" that tells the turtle where it is.

Orientation of Hatchling Loggerheads Tested in Magnetic Fields



Adapted from Nathan Putman, Courtney Endres, Catherine Lohmann, and Kenneth Lohmann, "Longitude Perception and Bicoordinate Magnetic Maps in Sea Turtles." ©2011 by Elsevier Inc.

Orientation of hatchling loggerheads tested in a magnetic field that simulates a position at the west side of the Atlantic near Puerto Rico (left) and a position at the east side of the Atlantic near the Cape Verde Islands (right). The arrow in each circle indicates the mean direction that the group of hatchlings swam. Data are plotted relative to geographic north (N = 0°).

5

The passage most strongly suggests that Adelita used which of the following to navigate her 9,000-mile journey?

- A) The current of the North Atlantic gyre
- B) Cues from electromagnetic coils designed by Putman and Lohmann
- C) The inclination and intensity of Earth's magnetic field
- D) A simulated "magnetic signature" configured by Lohmann

Estimated Difficulty: Easy	Key: C
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Choice C is the best answer. The first paragraph describes the 9,000-mile journey that Adelita made and raises the question, which the rest of the passage tries to answer, of how this loggerhead turtle was able to "steer a route across two oceans to find her destination" (lines 6-7). The answer comes most directly in the last paragraph, which presents Putman's belief that loggerhead turtles "work out their position using two features of the Earth's magnetic field that change over its surface" (lines 61-63): its inclination and its intensity. It is reasonable, therefore, to infer from the passage that this was the method that Adelita used.

Choice A is incorrect because there is no evidence in the passage that Adelita used the current of the North Atlantic gyre to navigate her 9,000-mile journey. The passage does discuss the North Atlantic gyre but only as the place where loggerhead turtle hatchlings "born off the sea coast of Florida spend their early lives" (lines 27-28).

Choice B is incorrect because there is no evidence in the passage that Adelita navigated her 9,000-mile journey with the aid of cues from electromagnetic coils designed by Putman and Lohmann. The passage does say that Putman and Lohmann use electromagnetic coils as part of their research on loggerhead turtles, but the coils are part of tanks used in a laboratory to study loggerhead hatchlings (see lines 16-19).

Choice D is incorrect because there is no evidence in the passage that Adelita navigated her 9,000-mile journey with the aid of a simulated "magnetic signature" configured by Lohmann. The passage does describe how Lohmann and Putman manipulate magnetic fields as part of their research on loggerhead turtle hatchlings (see, for example, lines 16-23), but there is no indication that the two scientists used (or even could use) the kind of equipment necessary for this project outside of laboratory tanks or with Adelita in the wild.

6

Which choice provides the best evidence for the answer to the previous question?

- A) Lines 1-3 ("In 1996 . . . way")
- B) Lines 32-34 ("Using . . . surface")
- C) Lines 58-60 ("In the wild . . . stars")
- D) Lines 70-73 ("Neither . . . it is")

Estimated Difficulty: Medium	Key: D
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Choice D is the best answer because in lines 70-73 the author indicates that "together, [inclination and intensity] provide a 'magnetic signature' that tells the turtle where it is." Therefore, these lines serve as the best evidence for the answer to the previous question.

Choice A is incorrect because in lines 1-3 the author establishes that Adelita made a 9,000-mile journey but does not explain how she navigated it. Therefore, these lines do not serve as the best evidence for the answer to the previous question.

Choice B is incorrect because in lines 32-34 the author indicates that Lohmann is able to "mimic the magnetic field at different parts of the Earth's surface" in his laboratory but does not explain how Adelita navigated her 9,000-mile journey or suggest that Lohmann had any influence over Adelita's trip. Therefore, these lines do not serve as the best evidence for the answer to the previous question.

Choice C is incorrect because in lines 58-60 the author notes that loggerhead turtles "in the wild" may make use of "landmarks like the position of the sea, sun and stars" but does not indicate that Adelita used such landmarks to navigate her 9,000-mile journey. Therefore, these lines do not serve as the best evidence for the answer to the previous question.

7

As used in line 3, "tracked" most nearly means

- A) searched for.
- B) traveled over.
- C) followed.
- D) hunted.

Estimated Difficulty: Easy	Key: C
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Choice C is the best answer because the context makes clear that Nichols followed Adelita's "epic journey with a satellite tag" (line 4).

Choice A is incorrect because while "tracked" sometimes means "searched for," it would make little sense in context to say that Nichols searched for Adelita's "epic journey with a satellite tag" (line 4). It is more reasonable to conclude from the passage that Nichols knew about Adelita and her journey and used a satellite tag to help follow it.

Choice B is incorrect because while “tracked” sometimes means “traveled over,” it would make no sense in context to say that Nichols traveled over Adelita’s “epic journey with a satellite tag” (line 4).

Choice D is incorrect because while “tracked” sometimes means “hunted,” it would make no sense in context to say that Nichols hunted Adelita’s “epic journey with a satellite tag” (line 4).

8

The author refers to reed warblers and sparrows (line 53) primarily to

- A) contrast the loggerhead turtle’s migration patterns with those of other species.
- B) provide examples of species that share one of the loggerhead turtle’s abilities.
- C) suggest that most animal species possess some ability to navigate long distances.
- D) illustrate some ways in which the ability to navigate long distances can help a species.

Estimated Difficulty: Easy	Key: B
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Choice B is the best answer because the author indicates that reed warblers and sparrows, like loggerhead turtles, had previously been known to have “some way of working out longitude” (line 54).

Choice A is incorrect because although the author notes that loggerhead turtles, reed warblers, and sparrows are all “animal migrants” (line 52), he offers no specifics about the migration patterns of reed warblers and sparrows, and the only connection he draws among the three animals is their recognized ability of somehow “working out longitude” (line 54).

Choice C is incorrect because the author only mentions three “animal migrants” by name (loggerhead turtles, reed warblers, and sparrows) and indicates that “several” such migrants had previously been known to have “some way of working out longitude” (lines 52-54). He makes no claim in the passage that most animal species have some long-distance navigation ability.

Choice D is incorrect because although the author indicates that reed warblers and sparrows, like loggerhead turtles, are “animal migrants” (line 52), he offers no specifics about how the ability to navigate long distances might help reed warblers and sparrows (nor, for that matter, much information about how this ability might help loggerhead turtles).

9

It can reasonably be inferred from the passage and graphic that if scientists adjusted the coils to reverse the magnetic field simulating that in the East Atlantic (Cape Verde Islands), the hatchlings would most likely swim in which direction?

- A) Northwest
- B) Northeast
- C) Southeast
- D) Southwest

Estimated Difficulty: Hard	Key: B
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Choice B is the best answer. The passage notes that Lohmann, who studied loggerhead turtle hatchlings “in a large water tank surrounded by a large grid of electromagnetic coils” (lines 17-19) capable of manipulating the magnetic field around the turtles, discovered that the hatchlings would start “swimming in the opposite direction” when he “reverse[d] the direction of the magnetic field around them” (lines 20-22). The graphic (whose caption establishes that geographic north is represented by 0 degrees) indicates that loggerhead hatchlings tested in a magnetic field that simulates a position at the east side of the Atlantic near the Cape Verde Islands would normally travel in a southwesterly direction (around 218 degrees). Given the above information, it is reasonable to infer that if the magnetic field were reversed, the turtles would travel in a northeasterly direction.

Choice A is incorrect because information in the passage and graphic suggests that the loggerhead turtle hatchlings would travel in a northeasterly, and not a northwesterly, direction if scientists reversed the magnetic field simulating a position at the east side of the Atlantic near the Cape Verde Islands.

Choice C is incorrect because information in the passage and graphic suggests that the loggerhead turtle hatchlings would travel in a northeasterly, and not a southeasterly, direction if scientists reversed the magnetic field simulating a position at the east side of the Atlantic near the Cape Verde Islands.

Choice D is incorrect because information in the passage and graphic suggests that the loggerhead turtle hatchlings would travel in a northeasterly, and not a southwesterly, direction if scientists reversed the magnetic field simulating a position at the east side of the Atlantic near the Cape Verde Islands. The graphic indicates that the hatchlings travel southwesterly under the normal (nonreversed) simulated conditions.

Writing and Language Test Overview

The Writing and Language Test asks you to be an editor and improve passages that were written especially for the test—and that include deliberate errors.

- Total questions: 44 passage-based questions with multiple-choice responses.
- Time allotted: 35 minutes.
- Calculators may not be used or be on your desk.

What the Writing and Language Test Is Like

When you take the Writing and Language Test, you'll do things that people do all the time when they edit: read, find mistakes and weaknesses, and fix them.

The good news: You do these things every time you revise your own schoolwork or workshop your writing with a friend.

To answer some questions, you'll need to look closely at a single sentence. Others require thinking about the entire passage or interpreting a graphic. For instance, you might be asked to choose where a sentence should be placed or to correct a misinterpretation of a scientific table or graph.

What You'll Read

Writing and Language passages range in length from about 400 to 450 words and vary in complexity. The passages you'll read will be informative/explanatory texts, nonfiction narratives, or arguments and will cover topics in the areas of careers, history/social studies, the humanities, and science. One or more passages will be accompanied by one or more informational graphics.

You'll want to read passages carefully so you can make decisions that improve them.

What the Writing and Language Test Measures

The Writing and Language Test measures the skills and knowledge you use to spot and fix problems in writing—the skills and knowledge you've been acquiring in high school and that you'll need for success in college and career. All questions are multiple choice and based on passages and any supplementary material, such as tables and graphs.

Command of Evidence

Questions that test command of evidence ask you to improve the way passages develop information and ideas. For instance, you might choose an answer that sharpens an argumentative claim or adds a relevant supporting detail.

Words in Context

Some questions ask you to improve word choice. You'll need to choose the best words to use based on the text surrounding them. Your goal will be to make a passage more precise or concise or to improve syntax, style, or tone.

Expression of Ideas

Some questions ask about a passage's topic development, organization, and language use. For instance, you may be asked which words or structural changes improve how a point is made or which phrase or sentence provides the most effective transition between ideas.

Standard English Conventions

Some questions relate to aspects of the mechanics of writing: sentence structure, usage, and punctuation. You'll be asked to edit text so that it conforms to the conventions of standard written English.

Analysis in History/Social Studies and in Science

You'll be asked to read and analyze passages about topics in history/social studies and in science and to make decisions that improve the passages (such as revising a paragraph to be more consistent with the data presented in an informational graphic).

Tips for the Writing and Language Test

The test comprises a series of passages and associated multiple-choice questions that put you in the role of someone revising or editing the work of an unspecified writer. You are revising the passages for development, organization, and effective language use as well as editing the passages to ensure that they follow the conventions of standard written English grammar, usage, and punctuation.

- Rote recall of language rules isn't tested, nor are any questions based on short snippets of text taken out of context. The best answer to each question represents how a writer should develop, organize, and use language in a multiparagraph passage. You are demonstrating that you can make context-based improvements to the text.
- The most common format for the questions offers three alternatives to an underlined portion of the passage along with the option of not changing the passage's original wording. Remember to answer these questions in the context of the whole passage.
- Stay with a passage until you have answered as many questions as you can before you proceed to the next passage. Don't jump from passage to passage.
- In your test booklet, mark each question you skip so that you can easily go back to it later if you have time.
- Remember that all questions are worth one point regardless of the type or difficulty. You don't lose points for guessing wrong, so you should try to answer each question as best you can.

Sample Writing and Language Test Materials

Following are samples of the kinds of passages and questions that may appear on the Writing and Language Test. For each set of sample materials:

- Read the passage carefully.
- Decide on the best answer to each question.
- Read the explanation for the best answer to each question and for the answer you chose (if the two are different).

On the actual test, the passages and questions will be in side-by-side columns, with each passage (spread over multiple pages) in the left column and associated multiple-choice questions in the right column. The directions that follow match the directions on the actual test.

DIRECTIONS

Each passage below is accompanied by a number of questions. For some questions, you will consider how the passage might be revised to improve the expression of ideas. For other questions, you will consider how the passage might be edited to correct errors in sentence structure, usage, or punctuation. A passage or a question may be accompanied by one or more graphics (such as a table or graph) that you will consider as you make revising and editing decisions.

Some questions will direct you to an underlined portion of a passage. Other questions will direct you to a location in a passage or ask you to think about the passage as a whole.

After reading each passage, choose the answer to each question that most effectively improves the quality of writing in the passage or that makes the passage conform to the conventions of standard written English. Many questions include a “NO CHANGE” option. Choose that option if you think the best choice is to leave the relevant portion of the passage as it is.

Questions 1-5 are based on the following passage.

Dong Kingman: Painter of Cities

A 1954 documentary about renowned watercolor painter Dong Kingman shows the artist sitting on a stool on Mott Street in New York City’s Chinatown. A crowd of admiring spectators watches as Kingman squeezes dollops of paint from several tubes into a tin watercolor box. From just a few primary colors, Kingman creates dozens of beautiful hues as he layers the translucent paint onto the paper on his easel. Each stroke of the brush and dab of the sponge transforms thinly sketched outlines into buildings, shop signs, and streetlamps. The street scene Kingman begins composing in this short film is very much in keeping with the urban landscapes for which he is best known.

[1] Kingman was keenly interested in landscape painting from an early age. [2] In Hong Kong,

where Kingman completed his schooling, teachers at that time customarily assigned students a formal “school name.” [3] His interest was so keen, in fact, that he was named after it. [4] The young boy who had been Dong Moy Shu became Dong Kingman. [5] The name Kingman was selected for its two parts: “king” and “man,” Cantonese for “scenery” and “composition.” [6] As Kingman developed as a painter, his works were often compared to

1 paintings by Chinese landscape artists dating back to CE 960, a time when a strong tradition of landscape painting emerged in Chinese art.

[7] Kingman, however, **2** vacated from that tradition in a number of ways, most notably in that he chose to focus not on natural landscapes, such as mountains and rivers, but on cities. **3**

In his urban landscapes, Kingman captures the vibrancy of crowded cities. His fine brushwork conveys detailed street-level activity: a peanut vendor pushing his cart on the sidewalk, a pigeon pecking for crumbs around a fire **4** hydrant, an old man tending to a baby outside a doorway. His broader brush strokes and sponge-painted shapes create majestic city skylines, with skyscrapers towering in the background, bridges connecting neighborhoods on either side of a river, and enormous ships docking at busy urban ports. To art critics and fans alike, these city scenes represent the innovative spirit of twentieth-century urban Modernism.

During his career, Kingman exhibited his work **5** internationally. He garnered much acclaim. In 1936, a critic described one of Kingman’s solo exhibits as “twenty of the freshest, most satisfying watercolors that have been seen hereabouts in many a day.” Since Kingman’s death in 2000, museums across the United States and in China have continued to ensure that his now-iconic landscapes remain available for the public to enjoy.

1

- A) NO CHANGE
- B) Chinese landscape artists
- C) painters of Chinese landscapes
- D) artists

Estimated Difficulty: Medium**Key:** A

Choice A is the best answer because it creates a comparison between like terms: “works” by Kingman and “paintings by Chinese landscape artists.”

Choice B is incorrect because it creates a comparison between unlike terms: “works” by Kingman and “Chinese landscape artists.”

Choice C is incorrect because it creates a comparison between unlike terms: “works” by Kingman and “painters of Chinese landscapes.”

Choice D is incorrect because it creates a comparison between unlike terms: “works” by Kingman and “artists.”

2

- A) NO CHANGE
- B) evacuated
- C) departed
- D) retired

Estimated Difficulty: Hard**Key:** C

Choice C is the best answer because “departed” is the most contextually appropriate way to indicate that Kingman had deviated from the tradition of Chinese landscape painting in a number of ways.

Choice A is incorrect because while “vacated” does offer some sense of “leaving,” it would be awkward and unconventional to say that a person was vacating from a tradition in a number of ways.

Choice B is incorrect because while “evacuated” does offer some sense of “leaving,” it would be awkward and unconventional to say that a person was evacuating from a tradition in a number of ways.

Choice D is incorrect because while “retired” does offer some sense of “leaving,” it would be awkward and unconventional to say that a person was retiring from a tradition in a number of ways.

3

To make this paragraph most logical, sentence 3 should be placed

- A) where it is now.
- B) before sentence 1.
- C) after sentence 1.
- D) after sentence 4.

Estimated Difficulty: Easy**Key:** C

Choice C is the best answer because placing sentence 3 after sentence 1 makes the paragraph most cohesive. Sentence 3 refers to Kingman’s “interest” being “so keen,” a continuation of the idea in sentence 1, which says that “Kingman was keenly interested in landscape painting from an early age.”

Choice A is incorrect because leaving sentence 3 where it is now creates a sequence of sentences that lacks sufficient cohesion. Keeping sentence 3 in its current location disrupts the link between sentence 2 (which describes the concept of “school names” in Hong Kong) and sentence 4 (which reveals that Dong Kingman was the school name of Dong Moy Shu).

Choice B is incorrect because placing sentence 3 before sentence 1 creates a sequence of sentences that lacks sufficient cohesion. Putting sentence 3 at the beginning of the paragraph would offer a poor introduction to the paragraph, in large part because sentence 3 builds directly on a point made in sentence 1.

Choice D is incorrect because placing sentence 3 after sentence 4 creates a sequence of sentences that lacks sufficient cohesion. Putting sentence 3 after sentence 4 would disrupt the link between sentence 4 (which mentions that Dong Moy Shu was given the school name Dong Kingman) and sentence 5 (which explains what the two parts composing the name Kingman mean in Cantonese).

4

- A) NO CHANGE
 B) hydrant—
 C) hydrant:
 D) hydrant

Estimated Difficulty: Easy

Key: A

Choice A is the best answer because a comma after the word “hydrant” separates the phrase “a pigeon pecking for crumbs around a fire hydrant” from the phrase “an old man tending to a baby outside a doorway.” A comma is also consistent with the punctuation choice made to separate the first two phrases in the series following the colon in the sentence.

Choice B is incorrect because a dash is not a conventional choice for punctuating items in a series.

Choice C is incorrect because although a colon can be used to introduce a series, it is not a conventional choice for separating items within a series.

Choice D is incorrect because it fuses together two items in the series. Separating the phrases “a pigeon pecking for crumbs around a fire hydrant” and “an old man tending to a baby outside a doorway” requires punctuation (and could also involve a coordinating conjunction).

5

Which choice most effectively combines the sentences at the underlined portion?

- A) internationally, and Kingman also garnered
 B) internationally; from exhibiting, he garnered
 C) internationally but garnered
 D) internationally, garnering

Estimated Difficulty: Medium

Key: D

Choice D is the best answer because it combines the sentences logically and efficiently, with the original second sentence becoming a participial phrase describing Kingman.

Choice A is incorrect because it creates a wordy and awkward construction and because it fails to link the acclaim Kingman received with the exhibition of his work.

Choice B is incorrect because it creates a repetitive and awkward construction.

Choice C is incorrect because “but” suggests contrast or exception, neither of which makes sense in the context of the sentence.

Questions 6-12 are based on the following passage and supplementary material.

A Life in Traffic

A subway system is expanded to provide service to a growing suburb. A bike-sharing program is adopted to encourage nonmotorized transportation.

6 To alleviate rush hour traffic jams in a congested downtown area, stoplight timing is coordinated. When any one of these changes occurs, it is likely the result of careful analysis conducted by transportation planners.

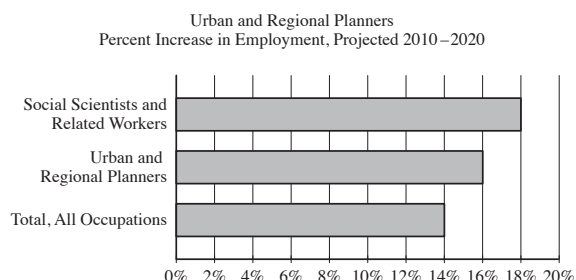
The work of transportation planners generally includes evaluating current transportation needs, assessing the effectiveness of existing facilities, and improving those facilities or **7** they design new ones. Most transportation planners work in or near cities, but some are employed in rural areas. Say, for example, a large factory is built on the outskirts of a small town. Traffic to and from that location would increase at the beginning and end of work shifts. The transportation

8 planner’s job, might involve conducting a traffic count to determine the daily number of vehicles traveling on the road to the new factory. If analysis of the traffic count indicates that there is more traffic than the current design of the road can efficiently accommodate, the transportation planner might recommend widening the road to add another lane.

Transportation planners work closely with a number of community stakeholders, such as government officials and other interested organizations and individuals. **9** Next, representatives from the local public health department might provide input in designing a network of trails and sidewalks to encourage people to walk more. **10** According to the American Heart Association, walking provides numerous benefits related to health and well-being. Members of the Chamber of Commerce might share suggestions about designing transportation and parking facilities to support local businesses.

11 People who pursue careers in transportation planning have a wide variety of educational backgrounds. A two-year degree in transportation technology may be sufficient for some entry-level jobs in the field. Most jobs, however, require at least a bachelor's degree; majors of transportation planners are varied, including fields such as urban studies, civil engineering, geography, or transportation and logistics management. For many positions in the field, a master's degree is required.

Transportation planners perform critical work within the broader field of urban and regional planning. As of 2010, there were approximately 40,300 urban and regional planners employed in the United States. The United States Bureau of Labor Statistics forecasts steady job growth in this field, **12** projecting that 16 percent of new jobs in all occupations will be related to urban and regional planning. Population growth and concerns about environmental sustainability are expected to spur the need for transportation planning professionals.



Adapted from United States Bureau of Labor Statistics, Employment Projections program. "All occupations" includes all occupations in the United States economy.

6

Which choice best maintains the sentence pattern already established in the paragraph?

- A) NO CHANGE
- B) Coordinating stoplight timing can help alleviate rush hour traffic jams in a congested downtown area.
- C) Stoplight timing is coordinated to alleviate rush hour traffic jams in a congested downtown area.
- D) In a congested downtown area, stoplight timing is coordinated to alleviate rush hour traffic jams.

Estimated Difficulty: Medium

Key: C

Choice C is the best answer because it most closely maintains the sentence pattern established by the two preceding sentences, which begin with noun and passive verb phrases ("A subway system is expanded," "A bike-sharing program is adopted").

Choice A is incorrect because it does not maintain the sentence pattern established by the two preceding sentences. Rather, it begins the sentence with an infinitive phrase.

Choice B is incorrect because it does not maintain the sentence pattern established by the two preceding sentences. Rather, it begins the sentence with a gerund phrase.

Choice D is incorrect because it does not maintain the sentence pattern established by the two preceding sentences. Rather, it places a prepositional phrase, "in a congested downtown area," at the beginning of the sentence.

7

- A) NO CHANGE
- B) to design
- C) designing
- D) design

Estimated Difficulty: Easy

Key: C

Choice C is the best answer because "designing" maintains parallelism with "evaluating," "assessing," and "improving."

Choice A is incorrect because "they design" does not maintain parallelism with "evaluating," "assessing," and "improving."

Choice B is incorrect because "to design" does not maintain parallelism with "evaluating," "assessing," and "improving."

Choice D is incorrect because "design" does not maintain parallelism with "evaluating," "assessing," and "improving."

8

- A) NO CHANGE
- B) planner's job
- C) planners job,
- D) planners job

Estimated Difficulty: Easy**Key:** B

Choice B is the best answer because it correctly uses an apostrophe to indicate possession and does not introduce any unnecessary punctuation.

Choice A is incorrect because while it correctly indicates the possessive relationship between "transportation planner" and "job," it introduces an unnecessary comma after the word "job."

Choice C is incorrect because it does not indicate the possessive relationship between "transportation planner" and "job" and because it introduces an unnecessary comma after the word "job."

Choice D is incorrect because it does not indicate the possessive relationship between "transportation planner" and "job."

9

- A) NO CHANGE
- B) For instance,
- C) Furthermore,
- D) Similarly,

Estimated Difficulty: Medium**Key:** B

Choice B is the best answer because the transitional phrase "For instance" logically indicates that what follows provides an example related to the previous sentence. "Representatives from the local public health department" is an example of the kinds of people with whom transportation planners work.

Choice A is incorrect because the transitional word "Next" indicates sequence, which is not logical given that what follows provides an example related to the previous sentence.

Choice C is incorrect because the transitional word "Furthermore" indicates addition, which is not logical given that what follows provides an example related to the previous sentence.

Choice D is incorrect because the transitional word "Similarly" indicates comparison or likeness, which is not logical given that what follows provides an example related to the previous sentence.

10

The writer is considering deleting the underlined sentence. Should the sentence be kept or deleted?

- A) Kept, because it provides supporting evidence about the benefits of walking.
- B) Kept, because it provides an additional example of a community stakeholder with whom transportation planners work.
- C) Deleted, because it blurs the paragraph's focus on the community stakeholders with whom transportation planners work.
- D) Deleted, because it doesn't provide specific examples of what the numerous benefits of walking are.

Estimated Difficulty: Medium**Key:** C

Choice C is the best answer because it identifies the best reason the underlined sentence should not be kept. At this point in the passage and the paragraph, a general statement about the benefits of walking only serves to interrupt the discussion of the community stakeholders with whom transportation planners work.

Choice A is incorrect because the underlined sentence should not be kept. Although the sentence theoretically provides supporting evidence about the benefits of walking, the passage has not made a claim that needs to be supported in this way, and including such a statement only serves to interrupt the discussion of the community stakeholders with whom transportation planners work.

Choice B is incorrect because the underlined sentence should not be kept. Although the American Heart Association could theoretically be an example of "other interested organizations" with which transportation planners work, the sentence does not suggest that this is the case. Instead, the association is merely the source for the general statement about the benefits of walking, a statement that only serves to interrupt the discussion of the actual community stakeholders with whom transportation planners work.

Choice D is incorrect because although the underlined sentence should be deleted, it is not because the sentence lacks specific examples of the numerous benefits of walking. Adding such examples would only serve to blur the focus of the paragraph further with general factual information, as the paragraph's main purpose is to discuss the community stakeholders with whom transportation planners work.

11

- A) NO CHANGE
- B) People, who pursue careers in transportation planning,
- C) People who pursue careers, in transportation planning,
- D) People who pursue careers in transportation planning,

Estimated Difficulty: Easy

Key: A

Choice A is the best answer because “who pursue careers in transportation planning” is, in context, a restrictive clause that should not be set off with punctuation. “Who pursue careers in transportation planning” is essential information defining who the “people” are.

Choice B is incorrect because it incorrectly sets off the restrictive clause “who pursue careers in transportation planning” with commas as though the clause were nonrestrictive or not essential to defining who the “people” are.

Choice C is incorrect because it incorrectly sets off the essential sentence element “in transportation planning” with commas as though the phrase were not essential to the meaning of the sentence. “In transportation planning” is essential information defining what the “careers” are.

Choice D is incorrect because it introduces an unnecessary comma after the word “planning,” incorrectly setting off the subject of the sentence (“people who pursue careers in transportation planning”) from the predicate (“have a wide variety of educational backgrounds”).

12

Which choice completes the sentence with accurate data based on the graph?

- A) NO CHANGE
- B) warning, however, that job growth in urban and regional planning will slow to 14 percent by 2020.
- C) predicting that employment of urban and regional planners will increase 16 percent between 2010 and 2020.
- D) indicating that 14 to 18 percent of urban and regional planning positions will remain unfilled.

Estimated Difficulty: Hard

Key: C

Choice C is the best answer because it completes the sentence with an accurate interpretation of data in the graph. The graph displays projections of how much growth in employment there is expected to be between 2010 and 2020 for “social scientists and related workers,” for “urban and regional planners,” and in “all occupations” in the U.S. economy. According to the graph, the employment of urban and regional planners is expected to increase 16 percent between 2010 and 2020.

Choice A is incorrect because the data in the graph do not support the claim that 16 percent of new jobs in all occupations will be related to urban and regional planning.

Choice B is incorrect because the data in the graph do not support the claim that job growth in urban and regional planning will slow to 14 percent by 2020.

Choice D is incorrect because the data in the graph do not support the claim that 14 to 18 percent of urban and regional planning positions will remain unfilled.

Math

The PSAT/NMSQT Math Test covers math practices, emphasizing problem solving, modeling, using tools strategically, and using algebraic structure. The questions test your ability to solve problems and use appropriate approaches and tools strategically.

Math Test Overview

The Math Test includes a portion that allows the use of a calculator and a portion that does not.

- Total questions: 48 (17 questions on the no-calculator portion; 31 questions on the calculator portion).
 - ◆ 40 standard multiple-choice questions.
 - ◆ 8 student-produced response questions.
- Time allotted for Math Test – No Calculator: 25 minutes; time allotted for Math Test – Calculator: 45 minutes.

What the Math Test Is Like

Instead of testing you on every math topic, the PSAT/NMSQT asks you to use the math that you'll rely on most in all sorts of situations. Questions on the Math Test are designed to mirror the problem solving and modeling you'll do in:

- College math, science, and social science courses
- Jobs that you hold
- Your personal life

For instance, to answer some questions you'll need to use several steps because in the real world, a single calculation is rarely enough to get the job done.

- Most math questions will be multiple choice, but some—called student-produced responses—ask you to come up with the answer rather than select the answer.
- Some parts of the test include several questions about a single scenario.

What the Math Test Measures

Fluency

The Math Test is a chance to show that you:

- Carry out procedures flexibly, accurately, efficiently, and strategically.
- Solve problems quickly by identifying and using the most efficient solution approaches.

This might involve solving a problem by inspection, finding a shortcut, or reorganizing the information you've been given.

Conceptual Understanding

You'll demonstrate your grasp of math concepts, operations, and relations. For instance, you might be asked to make connections between properties of linear equations, their graphs, and the contexts they represent.

Applications

Some real-world problems ask you to analyze a situation, determine the essential elements required to solve the problem, represent the problem mathematically, and carry out a solution.

Calculator Use

Calculators are important tools, and to succeed after high school, you'll need to know how—and when—to use them. In the Math Test – Calculator portion of the test, you'll be able to focus on complex modeling and reasoning because your calculator can save you time.

However, using a calculator, like any tool, isn't always the best way to solve a problem. The Math Test includes some questions that it's better not to use a calculator for, even though you're allowed to. With these questions, you'll probably find that the structure of the problem or your reasoning skills will lead you to the answers more efficiently.

Calculator Smarts

- Bring your own calculator. You can't share one.
- Don't bring a calculator you've never used before. Bring one you know. Practice for the test using the same calculator you'll use on test day.
- It may help to do scratch work in the test book. Get your thoughts down before using your calculator.
- Make sure your calculator is in good working order with fresh batteries. The testing staff may not have batteries or extra calculators. If your calculator fails during testing and you have no backup, you can complete the test without it. All questions can be answered without a calculator.

Acceptable Calculators

Only battery-operated, handheld equipment can be used for testing. No power cords are allowed. A list of acceptable graphing calculators can be found online at sat.org/calculators.

Calculators permitted during testing include:

- Most graphing calculators that don't have the unacceptable features listed in the next section
- All scientific calculators
- All four-function calculators (not recommended)

Unacceptable Calculators

You're not allowed to use any of the following items as a calculator (unless approved as an accommodation):

- Tablets, laptops, notebooks, or any other personal computing devices, including wearable technology
- Models that can access the internet, have wireless, Bluetooth, cellular, audio/video recording and playing, camera, or any other smartphone-type feature
- Models that have a computer-style (QWERTY) keyboard, pen-input, or stylus
- Models that use electrical outlets, make noise, or have a paper tape (unless approved as an accommodation). In addition, the use of hardware peripherals such as a stylus with an approved calculator is not permitted. Some models with touch-screen capability are not permitted (e.g., Casio ClassPad).

Answering Student-Produced Response Questions

You'll see directions in the test book for answering student-produced response questions. (See page 36 for an example.) Take the time to be comfortable with the format before test day. Here are some important points:

- Mark no more than one bubble in any column.
- Only answers indicated by filling in the bubbles will be scored (you won't receive credit for anything written in the boxes located above the bubbles).
- It doesn't matter in which column you begin entering your answer. As long as the correct response is recorded within the grid area, you'll receive credit.
- The grid can hold only four characters and can only accommodate positive numbers and zero.
- Unless a problem indicates otherwise, answers can be entered on the grid as a decimal or a fraction.
- Fractions like $\frac{3}{24}$ don't need to be reduced to their lowest terms.
- All mixed numbers need to be converted to decimals or improper fractions before being recorded in the grid.
- If the answer is a repeating decimal, you must grid the most accurate truncated or rounded value the grid will accommodate.

Tips for the Math Test

- Familiarize yourself with the directions ahead of time.
- You don't have to memorize formulas. Commonly used formulas are provided with the test directions at the beginning of each Math Test portion. Other formulas that are needed are provided with the test questions themselves. It's up to you to decide which formula is appropriate to a question.
- Read the problem carefully. Look for key words that tell you what the problem is asking. Before you solve each problem, ask yourself these questions: What is the question asking? What do I know?
- With some problems, it may be useful to draw a sketch or diagram of the given information.
- Use the test booklet for scratch work. You're not expected to do all the reasoning and figuring in your head. You won't receive credit for anything written in the booklet, but you'll be able to check your work easily later.
- In the portion of the test that allows calculator use, be strategic when choosing to use your calculator.
- If you don't know the correct answer to a multiple-choice question, eliminate some of the choices. It's sometimes easier to find the wrong answers than the correct one. On some questions, you may even be able to eliminate all the incorrect choices. Remember that you won't lose points for incorrect answers, so plan to make your best guess if you don't know the answer.
- Check your answer to make sure it's a reasonable reply to the question asked. This is especially true for student-produced response questions, where no answer choices are given.

Sample Math Test Materials

The sample math questions that follow show the kinds of questions that may appear on both portions of the Math Test. For these sample materials:

- Review the notes at the beginning of each portion. They match the notes on the actual test.
- Decide on the correct answer to each multiple-choice question, then read the explanation for the correct answer to each question and for the answer you chose (if the two are different).
- Follow the directions for the student-produced response questions shown later in this guide. The directions match the directions on the actual test.

Math Test – No Calculator Questions

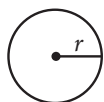
DIRECTIONS

For questions 1-4, solve each problem, choose the best answer from the choices provided, and fill in the corresponding bubble on your answer sheet. **For questions 5-6**, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 5 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

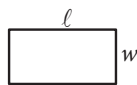
1. The use of a calculator **is not permitted**.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated, the domain of a given function f is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCE

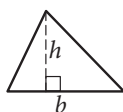


$$A = \pi r^2$$

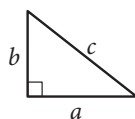
$$C = 2\pi r$$



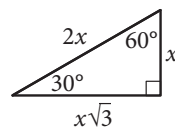
$$A = \ell w$$



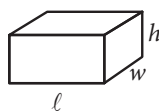
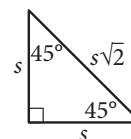
$$A = \frac{1}{2}bh$$



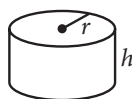
$$c^2 = a^2 + b^2$$



Special Right Triangles



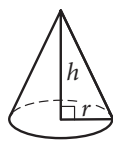
$$V = \ell wh$$



$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}\ell wh$$

The number of degrees of arc in a circle is 360.

The number of radians of arc in a circle is 2π .

The sum of the measures in degrees of the angles of a triangle is 180.

1

$$\frac{5(k+2)-7}{6} = \frac{13-(4-k)}{9}$$

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

- A) $\frac{9}{17}$
 B) $\frac{9}{13}$
 C) $\frac{33}{17}$
 D) $\frac{33}{13}$

Estimated Difficulty: Medium

Key: B

Choice B is correct. Simplifying the numerators

yields $\frac{5k+3}{6} = \frac{9+k}{9}$, and cross-multiplication gives $45k + 27 = 54 + 6k$. Solving for k yields $k = \frac{9}{13}$.

Choice A is incorrect. This value may result from not correctly applying the distributive property on the right-hand side, resulting in the expression $13 - 4 - k$ in the numerator. Correctly applying the distributive property yields $13 - (4 - k) = 13 - 4 + k$ in the numerator.

Choice C is incorrect. This value may result from not correctly applying the distributive property on the left-hand side, resulting in the expression $5k + 2 - 7$. Correctly applying the distributive property yields $5(k + 2) - 7 = 5k + 3$ in the numerator.

Choice D is incorrect. This value may result from not using the appropriate order of operations when simplifying either numerator.

2

$$4x - y = 3y + 7$$

$$x + 8y = 4$$

Based on the system of equations above, what is the value of the product xy ?

- A) $-\frac{3}{2}$
 B) $\frac{1}{4}$
 C) $\frac{1}{2}$
 D) $\frac{11}{9}$

Estimated Difficulty: Medium

Key: C

Choice C is correct. There are several solution methods possible, but all involve persevering in solving for the two variables and calculating the product. For example, combining like terms in the first equation yields $4x - 4y = 7$ and then multiplying that by 2 gives $8x - 8y = 14$. When this transformed equation is added to the second given equation, the y -terms are eliminated, leaving an equation in just one variable: $9x = 18$, or $x = 2$. Substituting 2 for x in the second equation (one could use either to solve) yields $2 + 8y = 4$, which gives $y = \frac{1}{4}$. Finally, the product xy is $2 \times \frac{1}{4} = \frac{1}{2}$.

Choice A is incorrect. Students who select this option have most likely made a calculation error in transforming the second equation (using $-4x - 8y = -16$ instead of $-4x - 32y = -16$) and used it to eliminate the x -terms.

Choice B is incorrect. This is the value of y for the solution of the system, but it has not been put back into the system to solve for x to determine the product xy .

Choice D is incorrect. Not understanding how to eliminate a variable when solving a system, a student may have added the equations $4x - 4y = 7$ and $x + 8y = 4$ to yield $5x + 4y = 11$. From here, a student may mistakenly simplify the left-hand side of this resulting equation to yield $9xy = 11$ and then proceed to use division by 9 on both sides in order to solve for xy .

3

$$\frac{1}{x} + \frac{2}{x} = \frac{1}{5}$$

Anise needs to complete a printing job using both of the printers in her office. One of the printers is twice as fast as the other, and together the printers can complete the job in 5 hours. The equation above represents the situation described. Which of the following describes what the expression $\frac{1}{x}$ represents in this equation?

- A) The time, in hours, that it takes the slower printer to complete the printing job alone
- B) The portion of the job that the slower printer would complete in one hour
- C) The portion of the job that the faster printer would complete in two hours
- D) The time, in hours, that it takes the slower printer to complete $\frac{1}{5}$ of the printing job

Estimated Difficulty: Hard	Key: B
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Choice B is correct. From the description given, $\frac{1}{5}$ is the portion of the job that the two printers, working together, can complete in one hour, and each term in the sum on the left side is the part of this $\frac{1}{5}$ of the job that one of the printers contributes. Since one of the printers is twice as fast as the other, $\frac{2}{x}$ describes the portion of the job that the faster printer is able to complete in one hour and $\frac{1}{x}$ describes the portion of the job that the slower printer is able to complete in one hour.

Choice A is incorrect. The student may have not seen that in this context, the rates (that is, the work completed in a fixed time) of the printers can be added to get the combined rate, but the times it takes each printer to complete the job cannot be added to get the time for both printers working together, since the time for printers working together is less than, not greater than, the times for each printer alone. Hence the terms in the sum cannot refer to hours worked. In fact, the time it would take the slower printer to complete the whole job is x hours.

Choice C is incorrect. The student may have seen that $\frac{1}{x}$ is the smaller term in the sum, wrongly concluded that the smaller term must apply to the faster printer, and then assumed the 2 in the numerator of the second term implies the equation describes work completed in 2 hours. In fact, the

portion of the job that the faster printer could

complete in 2 hours is $(2)\left(\frac{2}{x}\right) = \frac{4}{x}$.

Choice D is incorrect. The student may have correctly seen that the value $\frac{1}{5}$ on the right side refers to the portion of the job completed, but not seen that in this context, the rates (that is, the work completed in a fixed time) of the printers can be added to get the combined rate, but the times it takes each printer to complete the job cannot be added to get the time for both printers working together. Hence the terms in the sum cannot refer to hours worked. In fact, the time it takes the slower printer to complete $\frac{1}{5}$ of the job is $\frac{x}{5}$ hours.

4

The graph of $y = (2x - 4)(x - 4)$ is a parabola in the xy -plane. In which of the following equivalent expressions do the x - and y -coordinates of the vertex of the parabola appear as constants or coefficients?

- A) $y = 2x^2 - 12x + 16$
- B) $y = 2x(x - 6) + 16$
- C) $y = 2(x - 3)^2 + (-2)$
- D) $y = (x - 2)(2x - 8)$

Estimated Difficulty: Medium	Key: C
-------------------------------------	---------------

Choice C is correct. The equation $y = (2x - 4)(x - 4)$ can be written in vertex form, $y = a(x - h)^2 + k$, to display the vertex, (h, k) , of the parabola. To put the equation in vertex form, first multiply: $(2x - 4)(x - 4) = 2x^2 - 8x - 4x + 16$. Then add like terms: $2x^2 - 8x - 4x + 16 = 2x^2 - 12x + 16$. The next step is completing the square.

$$y = 2x^2 - 12x + 16$$

$$y = 2(x^2 - 6x) + 16$$

Isolate the x^2 term by factoring.

$$y = 2(x^2 - 6x + 9 - 9) + 16$$

Make a perfect square in the parentheses.

$$y = 2(x^2 - 6x + 9) - 18 + 16$$

Move the extra term out of the parentheses.

$$y = 2(x - 3)^2 - 18 + 16$$

Factor inside the parentheses.

$$y = 2(x - 3)^2 - 2$$

Simplify the remaining terms.

Therefore, the coordinates of the vertex, $(3, -2)$, are both revealed only in choice C. Since you are told that all of the equations are equivalent, simply knowing the form that displays the coordinates of the vertex

will save all of these steps—this is known as “seeing structure in the expression or equation.”


Choice A is incorrect; it is in standard form, displaying the y -value of the y -intercept of the graph (0, 16) as a constant.

Choice B is incorrect; it displays the y -value of the y -intercept of the graph (0, 16) as a constant.

Choice D is incorrect; it displays the x -value of one of the x -intercepts of the graph (2, 0) as a constant.

Student-Produced Response Math Questions

For some questions in the Math Tests, you will be asked to solve the problem and enter your answer in the grid, as described below, on the answer sheet.

- Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the bubbles accurately. You will receive credit only if the bubbles are filled in correctly.
- Mark no more than one bubble in any column.
- No question has a negative answer.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- Mixed numbers such as $3\frac{1}{2}$ must be gridded as 3.5 or 7/2 (If  is entered into the grid, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)
- Decimal answers:** If you obtain a decimal answer with more digits than the grid can accommodate, it may be either rounded or truncated, but it must fill the entire grid.

Answer: $\frac{7}{12}$ Answer: 2.5

Write answer in boxes. → ← Fraction line ← Decimal point

Grid in result.

7	/	1	2	2	.	5
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1	1	1	1
2	2	2	2	2	2	2
3	3	3	3	3	3	3
4	4	4	4	4	4	4
5	5	5	5	5	5	5
6	6	6	6	6	6	6
7	7	7	7	7	7	7
8	8	8	8	8	8	8
9	9	9	9	9	9	9

Acceptable ways to grid $\frac{2}{3}$ are:

2	/	3	.666	.667
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

Answer: 201—either position is correct

2	0	1	2	0	1
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1	1	1	1	1	1
2	2	2	2	2	2
3	3	3	3	3	3
4	4	4	4	4	4
5	5	5	5	5	5
6	6	6	6	6	6
7	7	7	7	7	7
8	8	8	8	8	8
9	9	9	9	9	9

NOTE: You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.

5

If $\frac{1}{2}x + \frac{1}{3}y = 4$, what is the value of $3x + 2y$?

Estimated Difficulty: Medium

Key: 24

Using the structure of the equation allows you to quickly solve the problem if you see that multiplying both sides of the equation by 6 clears the fractions and yields $3x + 2y = 24$.

6

$$x^2 + y^2 - 6x + 8y = 144$$

The equation of a circle in the xy -plane is shown above. What is the diameter of the circle?

Estimated Difficulty: Hard

Key: 26

Completing the square yields the equation $(x - 3)^2 + (y + 4)^2 = 169$, the standard form of an equation of the circle. Understanding this form results in the equation $r^2 = 169$, which when solved for r gives the value of the radius as 13. The diameter is twice the value of the radius; therefore, the diameter is 26.

Math Test – Calculator Questions

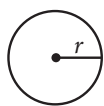
DIRECTIONS

For question 1-5, solve each problem, choose the best answer from the choices provided, and fill in the corresponding bubble on your answer sheet. **For question 6**, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 5 on page 36 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

NOTES

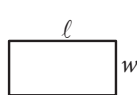
1. The use of a calculator **is permitted**.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated, the domain of a given function f is the set of all real numbers x for which $f(x)$ is a real number.

REFERENCE

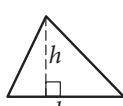


$$A = \pi r^2$$

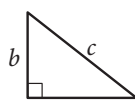
$$C = 2\pi r$$



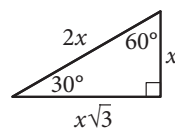
$$A = \ell w$$



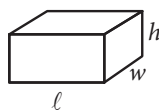
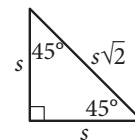
$$A = \frac{1}{2}bh$$



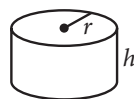
$$c^2 = a^2 + b^2$$



Special Right Triangles



$$V = \ell wh$$



$$V = \pi r^2 h$$



$$V = \frac{4}{3}\pi r^3$$



$$V = \frac{1}{3}\pi r^2 h$$



$$V = \frac{1}{3}\ell wh$$

The number of degrees of arc in a circle is 360.

The number of radians of arc in a circle is 2π .

The sum of the measures in degrees of the angles of a triangle is 180.

1

Aaron is staying at a hotel that charges \$99.95 per night plus tax for a room. A tax of 8% is applied to the room rate, and an additional onetime untaxed fee of \$5.00 is charged by the hotel. Which of the following represents Aaron's total charge, in dollars, for staying x nights?

- A) $(99.95 + 0.08x) + 5$
- B) $1.08(99.95x) + 5$
- C) $1.08(99.95x + 5)$
- D) $1.08(99.95 + 5)x$

Estimated Difficulty: Easy

Key: B

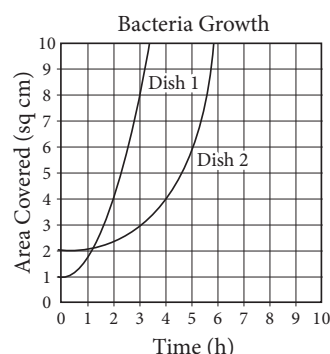
Choice B is correct. The total charge that Aaron will pay is the room rate, the 8% tax on the room rate, and a fixed fee. If Aaron stayed x nights, then the total charge is $(99.95x + 0.08 \times 99.95x) + 5$, which can be rewritten as $1.08(99.95x) + 5$.

Choice A is incorrect. The expression includes only one night's stay in the room and does not accurately account for tax on the room.

Choice C is incorrect. The expression includes tax on the fee, and the hotel does not charge tax on the \$5.00 fee.

Choice D is incorrect. The expression includes tax on the fee and a fee charge for each night.

2



A researcher places two colonies of bacteria into two petri dishes that each have an area of 10 square centimeters. After the initial placement of the bacteria ($t = 0$), the researcher measures and records the area covered by the bacteria in each dish every ten minutes. The data for each dish were fit by a smooth curve, as shown in the graph, where each curve represents the area of a dish covered by bacteria as a function of time, in hours. Which of the following is a correct statement about the data above?

- A) At time $t = 0$, both dishes are 100% covered by bacteria.
- B) At time $t = 0$, bacteria covers 10% of Dish 1 and 20% of Dish 2.
- C) At time $t = 0$, Dish 2 is covered with 50% more bacteria than Dish 1.
- D) For the first hour, the area covered in Dish 2 is increasing at a higher average rate than the area covered in Dish 1.

Estimated Difficulty: Medium

Key: B

Choice B is the correct answer. Each petri dish has area 10 square centimeters, and so at time $t = 0$, Dish 1 is 10% covered ($\frac{1}{10}$) and Dish 2 is 20% covered ($\frac{2}{10}$). Thus the statement in B is true.

Choice A is incorrect. At the end of the observations, both dishes are 100% covered with bacteria, but at time $t = 0$, neither dish is 100% covered.

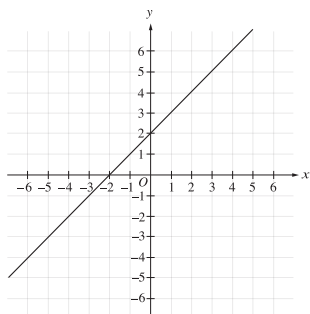
Choice C is incorrect. At time $t = 0$, Dish 1 is covered with 50% less bacteria than is Dish 2, but Dish 2 is covered with 100% more, not 50% more, bacteria than is Dish 1.

Choice D is incorrect. After the first hour, it is still true that more of Dish 2 is covered by bacteria than is Dish 1, but for the first hour the area of Dish 1 that is covered has been increasing at a higher average rate (about 0.8 sq cm/hour) than the area of Dish 2 (about 0.1 sq cm/hour).

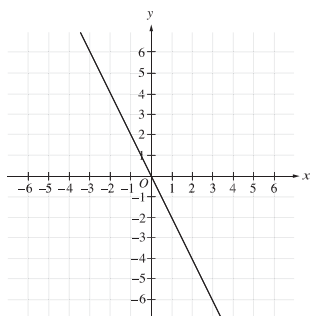
3

If k is a positive constant different from 1, which of the following could be the graph of $y - x = k(x + y)$ in the xy -plane?

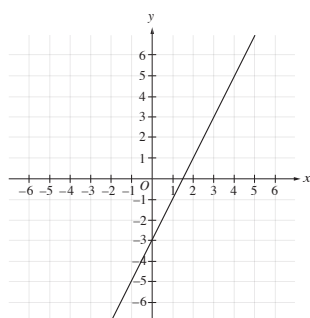
A)



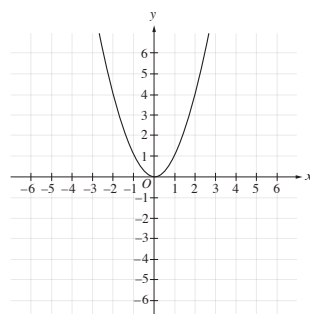
B)



C)



D)



Estimated Difficulty: Hard

Key: B

Choice B is correct. Manipulating the equation to solve for y gives $y = \left(\frac{1+k}{1-k}\right)x$, revealing that

the graph of the equation must be a line that passes through the origin. Of the choices given, only the graph shown in choice B satisfies these conditions.

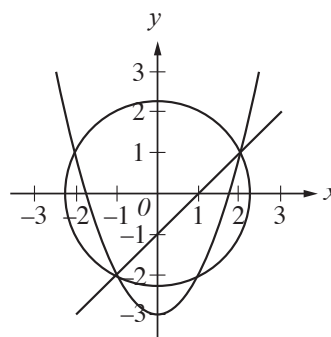
Choice A is incorrect. If you selected this answer, you may have seen that the term $k(x + y)$ is a multiple of $x + y$ and wrongly concluded that this is the equation of a line with slope 1.

Choice C is incorrect. If you selected this answer, you may have made incorrect steps when simplifying the equation or may have not seen the advantage that putting the equation in slope-intercept form would give in determining the graph, and thus wrongly concluded the graph has a nonzero y -intercept.

Choice D is incorrect. If you selected this answer, you may not have seen that term $k(x + y)$ can be multiplied out and the variables x and y isolated, and wrongly concluded that the graph of the equation cannot be a line.

4

$$\begin{aligned}x^2 + y^2 &= 5 \\y &= x^2 - 3 \\x - y &= 1\end{aligned}$$



A system of three equations and their graphs in the xy -plane are shown above. How many solutions does the system have?

- A) One
- B) Two
- C) Three
- D) Four

Estimated Difficulty: Easy

Key: B

Choice B is correct. The solutions to the system of equations are the points where the circle, parabola, and line all intersect. These points are $(-1, -2)$ and $(2, 1)$, and these are the only solutions to the system.

Choice A is incorrect. This answer may reflect the misconception that a system of equations can have only one solution.

Choice C is incorrect. This answer may reflect the misconception that a system of equations has as many solutions as the number of equations in the system.

Choice D is incorrect. This answer may reflect the misconception that the solutions of the system are represented by the points where any two of the curves intersect, rather than the correct concept that the solutions are represented only by the points where all three curves intersect.

5

If the expression $\frac{4x^2}{2x-1}$ is written in the equivalent form $\frac{1}{2x-1} + A$, what is A in terms of x ?

- A) $2x + 1$
- B) $2x - 1$
- C) $4x^2$
- D) $4x^2 - 1$

Estimated Difficulty: Hard

Key: A

Choice A is correct. The form of the equation suggests performing long division on $\frac{4x^2}{2x-1}$:

$$\begin{array}{r} 2x+1 \\ 2x-1 \overline{) 4x^2} \\ \underline{4x^2-2x} \\ 2x \\ \underline{2x-1} \\ 1 \end{array}$$

Since the remainder 1 matches the numerator in

$\frac{1}{2x-1}$, it is clear that $A = 2x + 1$.

A short way to find the answer is to use the structure to rewrite the numerator of the expression as $(4x^2 - 1) + 1$, recognizing the term in parentheses as a difference of squares, making the expression equal to

$$\frac{(2x-1)(2x+1)+1}{2x-1} = 2x+1 + \frac{1}{2x-1}.$$

From this, the answer $2x + 1$ is apparent. Another way to find the answer is to isolate A in the form

$$A = \frac{4x^2}{2x-1} - \frac{1}{2x-1}$$

and simplify. As with the first approach, this approach also requires you to recognize $4x^2 - 1$ as a difference of squares that factors.

Choice B is incorrect. If you selected this answer, you may have made a sign error while subtracting partial quotients in the long division.

Choice C is incorrect. If you selected this answer, you may have misunderstood how to work with fractions and may have tried the incorrect calculation

$$\frac{4x^2}{2x-1} = \frac{(1)(4x^2)}{2x-1} = \frac{1}{2x-1} + 4x^2.$$

Choice D is incorrect. If you selected this answer, you may have misunderstood how to work with fractions and may have tried the incorrect calculation

$$\frac{4x^2}{2x-1} = \frac{1+4x^2-1}{2x-1} = \frac{1}{2x-1} + 4x^2 - 1.$$

Student-Produced Response Math Question

For question 6, solve the problem and enter your answer in the grid, as described on page 36 of this guide.

6

The table shown classifies 103 elements as metal, metalloid, or nonmetal and as solid, liquid, or gas at standard temperature and pressure.

	Solids	Liquids	Gases	Total
Metals	77	1	0	78
Metalloids	7	0	0	7
Nonmetals	6	1	11	18
Total	90	2	11	103

What fraction of solids and liquids in the table are metalloids?

Estimated Difficulty: Easy

Key: .076, $\frac{7}{92}$

There are 7 metalloids that are solid or liquid, and there are 92 total solids and liquids. Therefore, the fraction of solids and liquids that are metalloids is $\frac{7}{92}$, or .076.

What You Need to Know About Taking the PSAT/NMSQT

PSAT/NMSQT Terms and Conditions

The testing policies and other information in this guide apply to every PSAT/NMSQT test administration. From time to time, College Board might update these policies.

By taking the PSAT/NMSQT, you're certifying that you are the person whose personal information is being provided for the test and that the information you are providing is accurate. Giving false or misleading information about yourself, such as name, address, date of birth, current grade level, expected graduation date, or name of high school, can result in an investigation, cancellation of scores, and a testing ban for College Board assessments, and such other actions as College Board, in its sole discretion, deems appropriate. We reserve the right to cancel scores from College Board test administrations that occurred prior to the test administration at issue.

- When someone registers for you, we will interpret that as you giving them permission to do so and you agreeing to the testing policies and guidelines through them.
- If your school participates in a PSAT/NMSQT administration and/or a bulk registration process for the test, College Board may receive your personal information, including first name, last name, gender, date of birth, and mailing address, from your school. This information will be kept secure and added to your permanent College Board record to be used for score reporting purposes as well as the other purposes that are outlined in this guide. By taking the PSAT/NMSQT test and signing the PSAT/NMSQT answer sheet, you acknowledge that your school has provided this information to College Board and consent to College Board retaining this information.
- Creating fake or multiple College Board student accounts, intentionally or inadvertently, is strictly prohibited and can result in an investigation, the merging of relevant records, and penalties that may include score cancellation or being banned from taking College Board assessments, including AP, SAT, and SAT Subject Tests.
- PSAT/NMSQT policies are subject to change at any time for test security or other reasons. College Board will attempt to provide adequate prior notice, although circumstances may limit our ability to do so.
- College Board and the test site will not be responsible for personal property, including prohibited items, brought to the test site on test day that becomes lost, stolen, or damaged.
- In the event of a test security-related concern, public health threat, natural disaster, terrorist act, or other unexpected events or circumstances, College Board may cancel testing for all or a specific group of test takers. When this occurs, College Board will notify test takers in advance if possible. We will communicate test cancellations and, when feasible, alternative test dates for affected test takers.
- To ensure the integrity of the PSAT/NMSQT, College Board reserves the right to bar any individual or group of individuals from registering for and/or taking any College Board test.
- If College Board becomes aware that you or someone else may be in imminent danger, we reserve the right to contact the appropriate individuals or agencies, including your high school or law enforcement agencies. We might also provide personal information to those contacted.
- Except as otherwise indicated in these terms and conditions, College Board, its co-sponsor, and its agents and subcontractors shall not be liable for any damages, including consequential, direct, indirect, or punitive damages arising from or otherwise related to test development and administration, score reporting, test security, or the failure of testing staff, students, or school districts to comply with College Board's policies and procedures, whether or not (A) the claim is contract based or (B) College Board has been advised of the possibility of such damages.
- The test occasionally includes test questions for research purposes. These questions may appear in any of the test sections, and testing time will be extended by 20 minutes so students have time to answer them. They will not be included in computing students' scores.
- College Board takes steps to ensure that answer sheets are properly handled and scored. In the unlikely event of a problem with shipping or otherwise processing answer sheets, or score reports, or with scoring the test, or score reporting, College Board will correct the error, if possible, schedule a makeup test for impacted test takers, or provide a refund of the test fee if the test taker has

paid it. These are the sole remedies for test takers in relation to such issues. College Board has sole discretion in determining whether to score lost answer sheets that are eventually recovered.

Additional Privacy Policies

College Board employs an array of measures, in compliance with applicable laws and the policies and guidelines set forth herein, to manage and safeguard personal information that you provide to College Board. Please see College Board's online privacy policy at collegeboard.org/privacy-policy.

Some of the information is available to your high school, the ETS Office of Testing Integrity, and College Board. When legally compelled to do so, for example pursuant to a subpoena, College Board may provide your personal information to outside parties.

Your scores will be made available to your high school. In addition, individual scores and other information you provide during testing may be reported to your district or state and/or their agents and representatives for educational, diagnostic and/or reporting purposes. For more information about the guidelines on the uses of College Board test scores and related data, ask your counselor or download Guidelines on the Uses of College Board Test Scores and Related Data from collegeboard.org/research. **Your name will never be sold to a commercial marketing firm or retailer of merchandise or services (such as test prep).**

College Board will disclose scores to a student's parent or guardian if the parent or guardian is able to supply to College Board the required authentication information, unless College Board determines in its sole discretion that its records on the student contain a court order, state statute, or legally binding document relating to matters such as divorce, separation, or custody that restricts the parent's or guardian's access to the student's scores. College Board will not independently investigate whether a court order, state statute, or legally binding document exists other than in its records; rather, relevant documents and information must be submitted to College Board. College Board reserves the right to request additional documents and information in connection with determining whether or not to disclose scores to a parent or guardian.

Other than disputes involving an "Invalid Scores" review (see the "Invalid Scores" section later in this guide) or infringement of College Board's intellectual property rights, all disputes **against College Board, its co-sponsor, and/or any or all of its contractors**, that relate in any way to registering for or taking the PSAT/NMSQT, including but not limited to requesting

or receiving test accommodations, score reporting, and the use of test taker data, shall exclusively be resolved by a single arbitrator through binding, individual arbitration administered by the American Arbitration Association ("AAA"), under the AAA Consumer Arbitration Rules in effect at the time a request for arbitration is filed with the AAA. Copies of the AAA Rules can be located at www.adr.org. Unless the parties mutually agree otherwise, the seat and the place of the arbitration shall be New York, New York. The parties agree that the Federal Arbitration Act ("FAA"), 9 U.S.C. § 1 et seq. governs this provision, and it is the intent of the parties that the FAA shall pre-empt all State laws to the fullest extent permitted by law. No arbitration may be maintained as a class action, and the arbitrator shall not have the authority to combine or aggregate the disputes of more than one individual, conduct any class proceeding, make any class award, or make an award to any person or entity not a party to the arbitration, without the express written consent of College Board. By agreeing to arbitration in accordance with this section, you are waiving your right to have your dispute heard by a judge or jury. Each party will be responsible for its own fees and expenses incurred in connection with the arbitration, regardless of its outcome. For purposes of this provision, each College Board contractor is a third-party beneficiary of this section, is entitled to the rights and benefits hereunder, and may enforce the provisions hereof as if it were a party hereto.

Notice to EU Residents

College Board is providing this supplemental privacy notice to give individuals in the European Union (EU) this additional information required by the EU General Data Protection Regulation (GDPR). These provisions, together with the statements in College Board Privacy Notices, explain our practices with regard to processing EU residents' personal data. For the most up to date information please visit collegeboard.org/privacy-policy/notice-to-eu-residents or contact Customer Service at eucustomerservice@collegeboard.org or (844) 849-3551.

College Board requires certain Personal Information from you in order to provide you with our products and services. Our registration forms indicate which data elements are required for our contracts. If you do not provide these data elements or you provide inaccurate information, this will invalidate your registration.

We collect and process your information based on the lawful basis described below:

- To fulfill a contract with you, such as to provide a College Board test or a test offered by another company on behalf of College Board.

- We may provide Personal Information to our subcontractors (processors) and other trusted businesses or persons to process it for us, based on our instructions and in compliance with our Privacy Policy and any other appropriate confidentiality and security measures. For example, we use service providers to help process and score our tests; to process a payment, to create an account on our website, and for website management.
- With your consent, to send you marketing email communications.

We may also process your Personal Information for the purposes of our legitimate interests, provided that such processing shall not outweigh your rights and freedoms. In particular, we may process your Personal Information as needed to:

(i) Protect you, us, or others from threats (such as security threats or test fraud); (ii) Improve College Board tests and support College Board research initiatives; (iii) Comply with the laws that are applicable to us around the world; (iv) Enable or administer our business, such as for quality control, consolidated reporting, and customer service; (v) Manage corporate transactions, such as mergers or acquisitions; and (vi) Understand and improve our business, improve test integrity, and for research purposes.

Automated Decision Making and Profiling

College Board may use automated processes in connection with scoring tests and for similar purposes, as needed to provide the test services that you have requested. All such decisions are subject to human review. We will not make automated decisions about you that may significantly affect you, unless (a) the decision is necessary as part of a contract that we have with you, (b) we have your explicit consent, or (c) we are required by law to use the technology. You can learn more about test scoring by reading the information posted on our website about each of our tests and in the Research section of our website research.collegeboard.org.

Your Rights

You always have the right to object to our marketing communications. To opt out of emails, simply click the link labeled unsubscribe at the bottom of any email we send you.

EU residents also have the right to access, correct, and request erasure or restriction of their Personal Information as required by law. This means you have a right to know whether or not College Board maintains your Personal Information. If we do have your Personal Information, we will provide you with a copy

(subject to the rights of others). If your information is incorrect or incomplete, you have the right to ask us to update it. You may also ask us to delete or restrict your Personal Information.

To exercise these rights, please contact us via email at eucustomerservice@collegeboard.org or write to us at the U.S. address on the inside front cover of this guide, and a member of our customer service team will assist you. Please understand that we may need to verify your identity before we can process your request. Additionally, our ability to delete Personal Information will be limited in those cases where we are required to retain records, such as in connection with score reports and test security processes.

If you believe that we have processed your Personal Information in violation of applicable law, you may file a complaint with College Board Office of General Counsel or with a supervisory authority.

Data Retention

We will retain your Personal Information for as long as the information is needed for the purposes set forth above and for any additional period that may be required or permitted by law. You may request that we delete your Personal Information by contacting us via email at eucustomerservice@collegeboard.org. Unless we are required by law or have a legitimate interest to retain your information, we will delete it within 30 days of your request.

College Board Alerts SMS Terms and Conditions

If you provide your mobile number to College Board, we will use it only for the purposes outlined in Protecting Your Privacy: Use of Student Information.

- To discontinue receiving SMS messages from College Board Alerts, text STOP to 70801, or you can call Customer Service. Message and data rates may apply.
 - ◆ For a request to unsubscribe, you will receive one (1) final message from College Board confirming that you have been unsubscribed in our system.
 - ◆ Following such confirmation message, no additional text messages will be sent unless you reactivate your subscription, which you can do by texting STUDENTJOIN or PARENTJOIN to 70801.
- For additional help, text HELP to 70801 or contact socialmediasupport@collegeboard.org.
- Compatible Carriers are listed under **Communications from College Board and Opt-In Choices** at collegeboard.org/privacy-policy/privacy-statement.

Grounds for Score Cancellation

College Board and ETS (referred to together in these terms as “we” or “our”) reserve the right to dismiss test takers, decline to score any test, and/or cancel any test scores when, in our sole judgment, as applicable, a testing irregularity occurs; there is an apparent discrepancy in the test taker’s identification; a test taker is improperly admitted to the test site; a test taker has engaged in misconduct (see “Misconduct” later in this section); based on a test taker’s testing history, the validity of the score is suspect; or the score is deemed invalid for another reason, including, but not limited to, discrepant handwriting, unusual answer patterns, or plagiarism. Pending investigations are kept confidential, but results of completed investigations may be communicated to intended score recipients, including if such investigation indicates attempts to gain an unfair advantage in any way, including but not limited to impersonation, use of prohibited items, or attempts to send/receive test content. We strive to protect the privacy of test takers whose scores are questioned. However, if the test taker publicizes the investigation, we reserve the right to make details of such investigation public.

When, for any of these reasons, we cancel a test score that has already been reported, we’ll notify score recipients that the score was canceled, but we won’t disclose the reason for cancellation unless authorized to do so by the test taker, unless there is suspected impersonation, unless in certain cases that affect a group of test takers, or unless where required by law.

Testing Irregularities Testing irregularities refer to problems or irregular circumstances or events associated with the administration of a test; they may affect an individual or groups of test takers.

Such problems include, without limitation, administrative errors (e.g., improper timing, improper seating, accommodations not approved by College Board, defective materials, and defective equipment), evidence of possible preknowledge of secure test content, and disruptions of test administrations such as natural disasters and other emergencies.

When testing irregularities occur, we may cancel an administration or individual tests, decline to score all or part of the test, or cancel the test score. We may do so whether or not the affected students caused the testing irregularities, benefited from them, or engaged in misconduct. We are solely responsible for determining whether testing irregularities have occurred, and our decisions are final. When appropriate, we give affected test takers the opportunity to take the test again within a reasonable timeframe, without charge. This is the sole remedy available to test takers as a result of testing irregularities.

Identification Discrepancies When, in the judgment of ETS or testing staff, there is a discrepancy in a test taker’s identification, the test taker may be denied admission to or dismissed from the test site; in addition, ETS may decline to score the test, or immediately cancel the test score.

Misconduct When, based upon observations during an administration or a review of evidence thereafter, College Board, ETS, or testing staff find misconduct in connection with a test, the test taker may be dismissed from the test site, or we may decline to score the test or may cancel the test score. Infractions during the test may result in dismissal from the test site, score cancellation, or being banned from taking College Board assessments, including AP, SAT, and SAT Subject Tests.

Misconduct includes, but is not limited to:

- Taking any test questions from the testing room, including through memorization, giving them to anyone else, or discussing them with anyone else through any means, including, but not limited to, email, text messages, social media, or the internet.
- Improperly accessing the test, a part of the test, or information about the test, or the test site.
- Referring to, looking through, or working on any test, or test section in the test book or answer sheet, other than during the testing period for that test or test section.
- Referring to, or looking through, any test or test section while leaving the answer sheet blank.
- Attempting to give or receive assistance, including by copying or through the use of an answer key.
- Discussing or sharing of test content during the test administration, during breaks, or after the test.
- Communicating with other test takers in any form while testing is in session in the testing room.
- Using or accessing any prohibited devices or aids such as, but not limited to, cell phones, smartphones, smartwatches, other oral or written communication devices or wearable technology, cameras, notes, and reference books, etc., during or in connection with the test, including during breaks.
- Failing to turn in a cell phone during the test site’s collection process (if applicable) or disrupting testing by a cell phone making noise or creating a disturbance.
- Sharing or other misuse of equipment, including using a calculator on a test or test section you’re not allowed to use calculators for.
- Consuming food or drink in unauthorized areas.
- Leaving the test room without permission.

- Leaving the building at any time during the test administration, including during breaks.
- Attempting in any manner to remove from the test room any part of a test book or any notes relating to the test.
- Attempting to take the test for someone else or attempting to have someone else impersonate you to take the test.
- Disturbing others or refusing to follow instructions given by testing staff.
- Refusing to follow any of the test administration regulations contained in this guide or given by the testing staff.

Testing History Based on a test taker's testing history, their scores may be canceled without applying procedures normally used for students as explained in the "Invalid Scores" section. College Board reserves the right to report a test taker's testing history to institutions that inquire as part of a test security investigation.

Invalid Scores We may also cancel scores if there is substantial evidence that they're invalid for any other reason. Evidence of invalid scores may include, without limitation, discrepant handwriting and unusual answer patterns.

Before canceling scores under this "Invalid Scores" section, we notify the test taker in writing (via email if possible) about our concerns, let the test taker submit information addressing them, and consider any information submitted. If substantial evidence still exists that the scores aren't valid, we offer the test taker options that may include voluntary score cancellation, a free retest under closely monitored conditions, or arbitration in accordance with ETS's standard Arbitration Agreement. When notifying the test taker, we send a copy of the booklet *Why and How Educational Testing Service Questions Test Scores*, which explains this process in greater detail. (Any test taker may request a copy of this booklet at any time.) Notification of the concern may be made via email if an email address is available. If no action is taken by the test taker, though, the scores will be canceled.

If at any time before, during, or after a review of questionable scores we find that test misconduct has occurred, we may treat the matter under our misconduct procedures; in that case, the options just described under this "Invalid Scores" section or the "Testing Irregularities" section, as applicable, will not be available, even if those options were previously offered. We have sole discretion in determining whether to treat potential testing violations under this section or the "Misconduct" section earlier in this guide.

In some instances, scores may be issued for guidance purposes only. This means that the test was not administered in accordance with testing policies described in the *PSAT/NMSQT Coordinator Manual*. Therefore, the resulting scores cannot be considered for some scholarship competitions. When scores are provided for guidance purposes only, a message will appear below the NMSC Selection Index score on your score report directing you to follow up with the test coordinator at your school to learn more about the reason for the "guidance purposes only" report. Students who are otherwise eligible and who are interested in entering the National Merit Scholarship Program should turn to page 7 of the National Merit Scholarship Program section of this guide to learn how to request information about another route of entry to the 2021 competition.

ETS will forward all reports of misconduct or testing irregularities to NMSC, which reserves the right to make its own independent judgment about a student's participation in the National Merit Scholarship Program.

Suspected Impersonation In cases where we believe that someone other than the intended test taker took the test for the intended test taker, and in other cases where required or permitted by law, we may refer the matter to law enforcement and inform the intended test taker's parent(s), legal guardian(s), and high school. The intended test taker specifically acknowledges, and agrees to, such disclosure.

Reporting Misconduct or Suspicious Behavior All PSAT/NMSQT tests are administered under strict supervision and security measures. To report any suspected violation of our Test Security and Fairness policies, or any suspicion concerning the security of a PSAT/NMSQT test administration, please contact the Office of Testing Integrity by phone at 609-406-5430 between 7:30 a.m. and 5:30 p.m. Eastern Time, by fax at 609-406-9709, or by email at testsecurity@info.collegeboard.org as soon as possible. All information will be held strictly confidential unless required to disclose it by law.

Reporting Violations

If we find that you have gained or attempted to gain or share an unfair advantage on any College Board test, we reserve the right to share this information with your high school, any other score recipients, law enforcement, and any other government agencies in the U.S. or abroad.

**End of the Test-Taking Help Section.
Turn book over for information about the
National Merit Scholarship Program.**

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PSAT/NMSQT®

CollegeBoard /

NATIONAL MERIT
SCHOLARSHIP CORPORATION

Fall 2019

National Merit®
Scholarship Program
conducted by National Merit Scholarship Corporation

Student Guide

**TO ENTER THE
2021 NATIONAL
MERIT SCHOLARSHIP
PROGRAM:**

- ✓ Take the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT®) in fall 2019
- ✓ Meet other entry requirements (see inside)



www.nationalmerit.org

**FLIP THIS
BOOK
OVER**

**FOR
TEST-TAKING
HELP ON THE
PSAT/NMSQT**

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National Merit[®] Scholarship Program

conducted by National Merit Scholarship Corporation (NMSC)

The **National Merit Scholarship Program** is an academic competition for recognition and college scholarships that began in 1955. High school students enter the National Merit Scholarship Program by taking the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT[®]), which serves as an initial screen of approximately 1.6 million entrants each year, and by meeting published program entry and participation requirements.

To enter the National Merit Scholarship Program and compete for recognition and 8,700 scholarships to be offered in 2021:

- Take the PSAT/NMSQT in October 2019.
- Meet other entry requirements.

Program entrants must take the test in the specified year of the high school program (*see page 6*). The 2019 PSAT/NMSQT is the qualifying test for entry to the 2021 program. Most entrants will complete high school and enroll in college in 2021.

Important information about the 2021 National Merit Scholarship Program:

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Scholarship Sponsors	
Corporations and Business Organizations	10
Colleges and Universities	21

Have questions?

Website: www.nationalmerit.org
Phone: (847) 866-5100
Address: National Merit Scholarship Corporation
1560 Sherman Avenue, Suite 200
Evanston, IL 60201-4897

Steps in the 2021 National Merit® Scholarship Competition

1,600,000 Entrants. In October 2019, U.S. high school students who take the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT®) and meet other program requirements will enter the 2021 competition for National Merit Scholarship Program recognition and scholarships. Nearly all program participants (entrants) will be juniors planning to enter college in 2021. NMSC uses PSAT/NMSQT Selection Index scores (calculated by doubling the sum of the Reading, Writing and Language, and Math Test scores) to determine 50,000 high-scoring participants who qualify for program recognition.

In April 2020, NMSC will ask high school principals to identify any errors or changes in the reported eligibility of their high scorers (students whose scores will qualify them for recognition in the fall of 2020).

PARTICIPANTS WHO QUALIFY FOR NATIONAL MERIT PROGRAM RECOGNITION

34,000 Commended Students. In late September 2020, more than two-thirds of the 50,000 high scorers will receive Letters of Commendation in recognition of their outstanding academic promise, but they will not continue in the competition for National Merit Scholarships. However, some of these students may be candidates for Special Scholarships provided by corporate and business sponsors.

16,000 Semifinalists. In early September 2020, about a third of the 50,000 high scorers will be notified that they have qualified as Semifinalists. Semifinalists are the highest-scoring entrants in each state. NMSC will notify them through their schools and provide scholarship application materials explaining requirements to advance in the competition for National Merit Scholarships to be offered in 2021.

15,000 Finalists. In February 2021, Semifinalists who meet academic and other requirements will be notified that they have advanced to Finalist standing. All National Merit Scholarship winners (Merit Scholar® awardees) will be chosen from this group of Finalists based on their abilities, skills, and accomplishments.

SCHOLARSHIP WINNERS

1,100 Special Scholarship recipients. Beginning in March 2021, NMSC will notify winners of Special Scholarships provided by corporate sponsors. Recipients are chosen from candidates sent scholarship application materials through their high schools in November 2020. Although not Finalists, scholarship recipients will be outstanding students who meet their sponsors' eligibility criteria. Sponsors will handle public announcement of their Special Scholarship winners.

7,600 Merit Scholarship® winners. Beginning in March 2021, NMSC will notify winners of the three types of National Merit Scholarships:

- » National Merit® \$2500 Scholarships
- » Corporate-sponsored scholarships
- » College-sponsored scholarships

In April, May, June, and July, NMSC will release names of Merit Scholar designees to news media for public announcement.

The 2021 Competition Begins in 2019

The National Merit® Scholarship Program is an annual academic competition among high school students for recognition and college scholarships. The program is conducted by National Merit Scholarship Corporation (NMSC), a not-for-profit organization that operates without government assistance.

The 2019 Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT®) is the qualifying test for entry to the 2021 National Merit Program. (The PSAT™ 10 and PSAT™ 8/9 will NOT be considered for entry to the National Merit Scholarship Program.) The competition will span about 18 months from entry in the fall of 2019 until the spring of 2021 when scholarships for college undergraduate study will be awarded. It is expected that about 4 million students will take the PSAT/NMSQT in 2019, and approximately 1.6 million of them will meet requirements to enter this program.

Entry Requirements

To enter the 2021 National Merit Program, a student needs to meet **all** of the following requirements. A student must:

1. be enrolled as a high school student (traditional or homeschooled), progressing normally toward graduation or completion of high school by 2021, and planning to accept admission to college no later than the fall of 2021;
2. attend high school in the United States, District of Columbia, or U.S. commonwealths and territories; or meet the citizenship requirements for students attending high school outside the United States (see below); and

3. take the 2019 PSAT/NMSQT in the specified year of the high school program and no later than the third year in grades 9 through 12, regardless of grade classification or educational pattern (explained in When to Take the Test on page 6).

On test day, students will be asked the following three questions to determine entry to the National Merit Scholarship Program:

- A. Are you enrolled as a high school student (traditional or homeschooled)?
A. Yes B. No
- B. When will you complete or leave high school and enroll full time in college?
A. 2019 B. 2020 C. 2021
D. After 2021 E. Not planning to attend college
- C. How many total years will you spend in grades 9–12?
A. 1 year B. 2 years C. 3 years
D. 4 years E. 5 or more years

Students testing outside the United States will also be asked the following question:

- D. Are you a citizen of the United States?
A. Yes B. No
C. No, but I am a U.S. lawful permanent resident (or have applied for permanent residence, the application for which has not been denied) and I intend to become a U.S. citizen at the earliest opportunity allowed by law.

The NMSC section of the PSAT/NMSQT Score Report shows the student's responses to these questions and whether the student's Selection Index score will be considered for the National Merit Scholarship Program.

Students Attending High School Outside the United States

To be eligible for the 2021 National Merit Scholarship Program, students attending high school outside the United States must be a citizen of the United States; or be a U.S. lawful permanent resident (or have applied for permanent residence, the application for which has not been denied) and intend to become a U.S. citizen at the earliest opportunity allowed by law.

When to Take the Test

To participate in the National Merit Program, students must take the PSAT/NMSQT in the specified year of their high school program. Because a student can participate (and be considered for a scholarship) in only one specific competition year, the year in which the student takes the PSAT/NMSQT to enter the competition is very important.

1. **Students who plan to spend the usual four years in high school (grades 9 through 12) before entering college full time** must take the qualifying test in their third year of high school (grade 11, junior year).

Sophomores who take the 2019 PSAT/NMSQT but plan to spend four years in grades 9 through 12 will **not** meet entry requirements for the 2021 National Merit Program. They must take the PSAT/NMSQT again in 2020 (when they are juniors) to enter the competition that will end when scholarships are awarded in 2022, the year they will complete high school and enter college.

2. **Students who plan to leave high school early to enroll in college full time after spending three years or less in grades 9 through 12** usually can participate in the National Merit Program if they take the PSAT/NMSQT before they enroll in college. To enter the competition for awards offered in 2021, these students must be in either the *next-to-last* or the *last year* of high school when they take the 2019 PSAT/NMSQT:

- a. if they are in the *next-to-last year* of high school when they take the 2019 PSAT/NMSQT, awards will be offered as they are finishing their last year of high school; or
- b. if they are in their *last year* of high school when they take the 2019 PSAT/NMSQT, awards will be offered the year after they have completed high school.

3. **Students who plan to participate in a post-secondary enrollment options program** (through which they enroll simultaneously in *both* high school and college) must take the qualifying test in their third year of high school (grade 11, junior year). To enter the competition that ends when scholarships are offered in 2021, these students must be in their third year of high school when they take the 2019 PSAT/NMSQT, the same as all other students who plan to spend four years in grades 9 through 12. The high school determines whether a student is participating in a post-secondary enrollment options program and certifies the student's status.

4. **Students who plan to take five years to complete grades 9 through 12** can participate in the National Merit Program if they take the PSAT/NMSQT in the third year of high school and again in the fourth year. These students' Selection Index scores will not be eligible for the program until a written request for entry to the competition is approved by NMSC. The request should include the student's name, high school name and location, year the student began high school, year the student will complete high school, and a brief explanation of the student's educational pattern.

NMSC will use the student's Selection Index score from the PSAT/NMSQT taken in the student's third year of grades 9 through 12 to determine the expected level of recognition. In order to be recognized in the fifth (final) year of high school, the student must take the PSAT/NMSQT again in the fourth year, and earn a qualifying Selection Index score at or above the level achieved on the third year test. The level of recognition a student receives cannot exceed the level earned on the qualifying test taken during the student's third year in grades 9 through 12, the year in which all other competitors are considered.

NOTE: If your high school standing and enrollment do not fit one of the preceding descriptions (1, 2, 3, or 4) or if you have any questions about when to take the PSAT/NMSQT for National Merit Program entry, contact NMSC immediately.

Unable to Take the PSAT/NMSQT?

If you do not take the 2019 PSAT/NMSQT because of illness, an emergency, or other extenuating circumstance, you may still be able to enter the 2021 National Merit Scholarship Program. To request information about another route of entry after the Fall 2019 PSAT/NMSQT administration, **write** to NMSC as soon as possible but no later than April 1, 2020. The alternate entry request should include your name and home address, the contact information of the person making the request, the name and address of your high school, and a brief explanation of why you missed the test. **Do not delay**; the earlier you write, the more options you will have for scheduling test dates.

Mail your request to:

National Merit Scholarship Corporation
Attn: Scholarship Administration
1560 Sherman Avenue, Suite 200
Evanston, IL 60201-4897

Your letter must be postmarked on or before April 1, 2020, for your request to be considered.

If you felt your test performance was negatively affected for any reason and you do not want your 2019 PSAT/NMSQT Selection Index score used for participation in the 2021 National Merit Program, you must contact NMSC immediately but no later than November 15, 2019, to submit a formal request. Requests received after November 15, 2019, will not be considered.

Program Recognition

NMSC uses PSAT/NMSQT Selection Index scores (calculated by doubling the sum of the Reading, Writing and Language, and Math Test scores) as an initial screen of some 1.6 million program entrants. The 2019 Selection Index scores of all students who meet entry requirements for the 2021 program will be considered. In the spring of 2020, NMSC will ask high school principals to identify any errors or changes in the reported eligibility of their high scorers (students whose Selection Index scores will qualify them for recognition in the fall of 2020).

Commended Students. In September 2020, more than two-thirds (about 34,000) of the high scorers will be

designated Commended Students. They will be named on the basis of a nationally applied Selection Index qualifying score that may vary from year to year.

In recognition of their outstanding ability and potential for academic success in college, these students will be honored with Letters of Commendation sent to them through their high schools. Although Commended Students will not continue in the competition for National Merit Scholarships, some may be candidates for Special Scholarships offered by corporate sponsors (see page 9). NMSC will notify those candidates in November 2020.

Semifinalists. Some 16,000 of the high scorers, representing less than 1 percent of the nation's high school graduating seniors, will qualify as Semifinalists. Only Semifinalists will have an opportunity to advance in the competition for Merit Scholarship® awards. NMSC will notify Semifinalists of their standing and send scholarship application materials to them through their high schools in September 2020. Their names will be sent to regionally accredited four-year U.S. colleges and universities and released to local news media for public announcement in mid-September.

NMSC designates Semifinalists in the program on a state-representational basis to ensure that academically able young people from all parts of the United States are included in this talent pool. Using the latest data available, an allocation of Semifinalists is determined for each state, based on the state's percentage of the national total of high school graduating seniors. For example, the number of Semifinalists in a state that enrolls approximately two percent of the nation's graduating seniors would be about 320 (2 percent of the 16,000 Semifinalists).

NMSC then arranges the Selection Index scores of all National Merit Program participants within a state in descending order. The score at which a state's allocation is most closely filled becomes the Semifinalist qualifying score. Entrants with a Selection Index score at or above the qualifying score are named Semifinalists. As a result of this process, Semifinalist qualifying scores vary from state to state and from year to year, but the scores of all Semifinalists are extremely high.

In addition to Semifinalists designated in each of the 50 states and without affecting the allocation to any state, Semifinalists are named in several other selection units that NMSC establishes for the competition. These units are for students attending schools in the District of Columbia, schools in U.S. commonwealths and territories, schools in other countries that enroll U.S. citizens, and

U.S. boarding schools that enroll a sizable proportion of their students from outside the state in which the school is located. A participant can be considered for Semifinalist standing in only one state or selection unit, based on the high school in which the student is regularly enrolled when taking the PSAT/NMSQT.

Finalists. A Semifinalist must fulfill several additional requirements and advance to the Finalist level of the competition before being considered for a National Merit Scholarship. Over 90 percent (about 15,000) of the Semifinalists are expected to become Finalists and receive a Certificate of Merit attesting to their distinguished performance in the competition.

To qualify as a Finalist, a Semifinalist must:

1. continue to meet all program entry requirements (explained on page 5);
2. be enrolled in the last year of high school and planning to enroll full time in college the following fall, or be enrolled in the first year of college if grades 9 through 12 were completed in three years or less;
3. complete the National Merit Scholarship Application with all information requested, which includes writing an essay;
4. have a record of very high academic performance in all of grades 9 through 12 and in any college course work taken (the high school must provide a complete record of courses taken and grades earned by the student, as well as information about the school's curriculum and grading system);
5. be fully endorsed for Finalist standing and recommended for a National Merit Scholarship by the high school principal;
6. take the SAT® or ACT® and earn scores that confirm the PSAT/NMSQT performance that resulted in Semifinalist standing; and
7. provide any other documentation and information that NMSC requests.

Choosing Scholarship Winners

Only Finalists will be considered for the 7,600 National Merit Scholarships. Approximately half of the Finalists will be Merit Scholarship winners (Merit Scholar® awardees). Winners are chosen on the basis of their

abilities, skills, and accomplishments—without regard to gender, race, ethnic origin, or religious preference. Scholarship recipients are the candidates judged to have the greatest potential for success in rigorous college studies and beyond.

To receive a scholarship payment, a Merit Scholarship winner must notify NMSC of plans to (a) enroll in a college or university in the United States that holds accredited status with a regional accrediting commission on higher education, and (b) enroll full time in an undergraduate course of study leading to a traditional baccalaureate degree. NMSC scholarship stipends are not payable for attendance at service academies or certain institutions that are limited in their purposes or training.

The selection process involves evaluating substantial amounts of information about Finalists obtained from both students and their high schools. Included are the Finalist's academic record (course load and difficulty level, depth and breadth of subjects studied, and grades earned); standardized test scores; the student's essay; demonstrated leadership and contributions to school and community activities; and the school official's written recommendation and characterization of the Finalist.

The same process is used to select Special Scholarship winners for a corporate sponsor's awards.

Types of Scholarships

Some 7,600 National Merit Scholarships of three types and approximately 1,100 Special Scholarships will be awarded in 2021; these 8,700 awards will have a combined value of about \$41 million. Different types of scholarships will be offered, but no student can receive more than one monetary award from NMSC.

National Merit® \$2500 Scholarships. These awards are unique because every Finalist is considered for one and winners are named in *every* state and other selection unit. The number awarded in each state is determined by the same representational procedure used to designate Semifinalists. Finalists compete with all other Finalists in their state or selection unit for one of the 2,500 National Merit \$2500 Scholarships. Winners are selected by a committee of college admission officers and high school counselors.

National Merit \$2500 Scholarships provide a single payment of \$2,500. NMSC's own funds support the majority of these scholarships, but corporate sponsors help underwrite these awards with grants they provide to NMSC in lieu of paying administrative fees.

A Total of 8,700 Scholarships Offered

	National Merit® \$2500 Scholarships	Corporate-sponsored Merit Scholarships	Corporate-sponsored Special Scholarships	College-sponsored Merit Scholarships
Who is considered?	All Finalists compete with all other Finalists in their state or other selection unit.	Finalists who meet criteria specified by a corporate sponsor, usually: <ul style="list-style-type: none"> • children of employees; • residents of specific communities; or • Finalists with certain college major or career plans 	High-performing program participants (although not Finalists) who meet a sponsor's criteria; most are for: <ul style="list-style-type: none"> • children of employees; • residents of specific communities; or • participants with certain college major or career plans 	Finalists who plan to attend a sponsor college and have informed NMSC that the sponsor college is their first choice
Who selects winners?	A committee of college admission officers and high school counselors	NMSC's professional staff	NMSC's professional staff	Officials of each sponsor college
What is the monetary value?	Awards provide a one-time payment of \$2,500.	Varies by sponsor—awards can be a one-time payment ranging from \$2,500 to \$5,000 or renewable awards that range from \$1,000 to \$10,000 per year.	Varies by sponsor—awards can be a one-time payment ranging from \$2,500 to \$5,000 or renewable awards that range from \$1,000 to \$10,000 per year.	Varies by sponsor—awards are renewable for 4 years of study at the sponsor institution. Stipends range from \$500 to \$2,000 per year.
When does NMSC begin sending scholarship offers?	Late March	Early March	Early March	Early May

Corporate-sponsored scholarships. In 2019, about 220 corporations, company foundations, and businesses sponsored scholarships through the National Merit Program as part of their educational philanthropy. These sponsors committed about \$16 million to support more than 1,000 corporate-sponsored Merit Scholarship awards and 1,100 Special Scholarships for students with qualifications that particularly interest them.

The number of **National Merit** Scholarships a company or business offers annually may range from

one to more than 100. Finalists who meet a sponsor's criteria are identified from information Semifinalists supply on their scholarship applications. Winners are selected from this pool based on their abilities, skills, and accomplishments. The scholarship name usually identifies the grantor—for example, National Merit XYZ Company Scholarship.

Over two-thirds of the program's corporate sponsors also provide **Special** Scholarships. Organizations that sponsor Special Scholarships make Entry Forms

available to children of employees or members, or to students with other qualifications that interest them. Entry Forms are completed by students (and their parents, if applicable). If the number of Finalists eligible for a sponsor's awards is smaller than the number of awards the corporate organization wishes to offer, NMSC establishes a pool of high-scoring candidates who filed Entry Forms. NMSC then sends Special Scholarship application materials to these candidates through their high schools and invites them to compete for the sponsor's Special Scholarships.

Each corporate sponsor specifies the monetary limits of scholarships it finances and decides whether the awards provide one-time payments or fixed stipends that can be renewed for up to four years of college undergraduate study. (See chart on page 9.)

College-sponsored Merit Scholarships. In the 2021 competition, it is expected that about 4,100 National Merit Scholarships will be offered to Finalists who plan to attend a sponsor college or university. (See the list of about 180 colleges that currently are Merit Scholarship sponsors beginning on page 21.) A college-sponsored scholarship is renewable for up to four years of undergraduate study at the sponsor institution. It cannot be transferred; therefore, it is canceled if a winner does not attend the college financing the award.

Officials of each sponsor institution choose award recipients from among Finalists who have been accepted for admission and have informed NMSC that the sponsor college or university is their first choice. Each college sponsor chooses the annual stipend their institution offers to award recipients, within a range of \$500 to \$2,000 per year. All college-sponsored scholarship recipients at the institution will receive the same stipend amount as determined by the college.

Scholarship Sponsors

Approximately 400 independent organizations and institutions sponsor more than two-thirds of the National Merit Scholarships offered each year. All Special Scholarships are sponsored by business organizations that also support Merit Scholarship awards.

Corporate scholarship sponsors. Following is a list of corporate organizations that currently sponsor scholarships in the National Merit Program with any eligibility criteria that apply to candidates for their awards. An asterisk (*) indicates the sponsor offers Special Scholarships in addition to National Merit Scholarships and requires that Entry Forms be filed.

The number of awards shown is an estimate of the yearly total, and neither the sponsor nor NMSC is obligated to offer these scholarships in 2020, 2021, or beyond.

A

AbbVie Inc.—Every Finalist who is the child of an employee of the corporation or a U.S. subsidiary will be offered an award.

ACI Worldwide, Inc.—2 awards for Finalists who are children of employees of the corporation and its subsidiaries.

* **Acushnet Company**—3 awards for children of employees of the company and its subsidiaries.

* **ADP Foundation**—40 awards for children of employees of ADP.

* **Aerojet Rocketdyne Foundation**—10 awards for the children of employees of Aerojet Rocketdyne Holdings, Inc. and its subsidiaries.

* **Akzo Nobel Inc.**—4 awards for children of employees of the corporation and its subsidiaries.

* **Albany International**—2 awards for children of employees of the corporation and its subsidiaries.

* *This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

* **The Allergan Foundation**—17 awards for children of employees of Allergan, Inc. and its eligible subsidiaries.

Alliance Data Systems Corporation—Every Finalist who is the child of an employee of the corporation or an eligible subsidiary will be offered an award.

* **Ameren Corporation Charitable Trust**—6 awards for children of employees of Ameren Corporation.

American Air Liquide Holdings, Inc.—5 awards for Finalists who are children of employees of the corporation and its subsidiaries.

* **American City Business Journals, Inc.**—2 awards for children of employees of the corporation.

American Electric Power Company, Inc.—5 awards for Finalists who are children of employees of the corporation and its subsidiaries.

* **American Financial Group**—2 awards for children of employees of the corporation and its subsidiaries.

* **AmerisourceBergen Corporation**—8 awards for children of employees of the corporation and its subsidiaries.

* **The AMETEK Foundation**—7 awards for children of employees of AMETEK, Inc. and its subsidiaries.

Anixter Inc.—2 awards for Finalists who are children of employees of the corporation.

* **Aon Foundation**—15 awards for children of employees of Aon and its subsidiaries.

* **Apache Corporation**—2 awards for children of employees of the corporation and its subsidiaries.

* **Archer Daniels Midland Company**—10 awards for children of employees of ADM and its subsidiaries.

* **Arkema Inc. Foundation**—4 awards for children of employees of Arkema Inc. and its subsidiaries.

ARRIS International, plc—Every Finalist who is the child of an employee of the corporation will be offered an award.

ASC Partners, LLC—2 awards for Finalists in the National Merit Scholarship Program.

Ascension—20 awards for Finalists who are children of employees of the organization.

Aspen Technology, Inc.—3 awards for Finalists who are children of employees of the corporation.

* **Astellas US LLC**—2 awards for children of employees of the corporation and its eligible affiliates.

* **AstraZeneca Pharmaceuticals LP**—30 awards for children of employees of AstraZeneca Pharmaceuticals LP and MedImmune Biologics, Inc.

B

BASF Corporation—Up to 20 awards for Finalists who are children of employees of the corporation and its subsidiaries.

Battelle—Every Finalist who is the child of an employee of the company will be offered an award.

* **BB&T Corporation**—20 awards for children of employees of the corporation.

Bentley Systems, Incorporated—Every Finalist who is the child of an employee of the corporation will be offered an award.

Mary E. Beyerle Trust—7 awards for Finalists from Maryland, New Jersey, and Pennsylvania.

** This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

BNSF Railway Foundation—Up to 10 awards for Finalists who are children of employees of BNSF Corporation and its subsidiaries.

The Boeing Company—Every Finalist who is the child of an employee of the company or a subsidiary will be offered an award.

* **BorgWarner Inc.**—6 awards for children of employees of the corporation and its subsidiaries and divisions.

* **Brady Corporation Foundation, Inc.**—5 awards for children of employees of Brady Corporation and its eligible subsidiaries.

* **Bridgestone Americas Trust Fund**—Up to 50 awards for children of employees of Bridgestone Americas, Inc. and its participating subsidiaries.

* **Bristol-Myers Squibb Foundation, Inc.**—50 awards for children of employees of the Bristol-Myers Squibb Company's U.S. divisions and subsidiaries.

* **Broadridge Financial Solutions, Inc.**—6 awards for children of employees of the corporation and its qualifying subsidiaries.

* **Brooks Brothers Group, Inc.**—2 awards for children and grandchildren of employees of the corporation and its subsidiaries.

* **Brown & Brown, Inc.**—10 awards for children of employees of the corporation and its eligible subsidiaries.

* **Bunge North America, Inc.**—4 awards for children of employees of the corporation and its subsidiaries; the awards are distributed among employment groups.

* **Bunzl USA, LLC**—5 awards for children of employees of the corporation and its subsidiaries.

C

* **CACI International Inc**—5 awards—3 awards for children of employees of the corporation and its subsidiaries; 2 awards for Finalists who are planning to major in certain technological and mathematical fields.

* **Carlisle LLC**—2 awards for children of employees of the corporation and its subsidiaries; the awards are distributed among employment groups.

* **Carpenter Technology Corporation**—4 awards for children of employees of the corporation and its subsidiaries.

CBS Corporation—5 awards for Finalists who are children of employees of the corporation and its eligible subsidiaries.

* **CDK Global, LLC**—6 awards for children of employees of the corporation.

Chevron U.S.A. Inc.—10 awards for Finalists who are children of employees of the corporation and its affiliated companies.

* **Coalfire Systems, Inc.**—3 awards for children of employees of the corporation.

* **Colgate-Palmolive Company**—20 awards for children of employees of the company and its subsidiaries.

* **Commvault Systems, Inc.**—2 awards for children of employees of the corporation.

* **Computer Aid, Inc.**—2 awards for children of employees of the corporation and its subsidiaries.

* **Corning Incorporated**—5 awards for children of employees of the corporation and its subsidiaries.

* **(COUNTRY Financial) CC Services, Inc.**—5 awards for children of COUNTRY employees.

** This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

* **Crum & Forster**—10 awards for children of employees of the company.

CSX Corporation—5 awards for Finalists who are children of employees of the corporation.

D

* **Denstply Sirona Inc.**—2 awards for children of U.S. associates of the corporation and its subsidiaries.

Gaylord and Dorothy Donnelley Foundation—1 award for a Finalist from a designated county in South Carolina.

E

* **E*TRADE Financial Corporation**—2 awards for children of employees of the corporation.

Eastman Foundation—7 awards for Finalists who are children of employees of Eastman and its subsidiaries.

* **Eaton Charitable Fund**—15 awards for children of employees of Eaton Corporation.

Ellucian Company L.P.—2 awards for Finalists who are children of employees of the company.

Emerson Charitable Trust—10 awards for Finalists who are children of employees of Emerson Electric Co. and its subsidiaries.

* **The Estée Lauder Companies Inc.**—3 awards for children of employees of the corporation and its U.S. affiliates and subsidiaries.

* **Eversource Energy Foundation, Inc.**—5 awards for children of employees of the company or its subsidiaries.

F

* **FedEx Custom Critical, Inc.**—4 awards—2 awards for children of employees; 2 awards for children and grandchildren of contractors.

* **FedEx Freight Corporation**—20 awards for children of employees of the corporation.

* **FedEx Ground Package System, Inc.**—12 awards—6 awards for the children of package handlers; 6 awards for the children of non-package handlers.

* **Ferro Corporation**—3 awards for children of employees of the corporation.

* **Fifth Third Foundation**—25 awards for children of employees of Fifth Third Bank.

Fluor Foundation—4 awards for Finalists who are children of employees of Fluor and its eligible subsidiaries.

* **FMC Corporation**—4 awards for children of employees of the corporation and its subsidiaries.

Formosa Plastics Corporation, U.S.A.—Every Finalist who is the child of an employee of the corporation or an affiliated organization will be offered an award.

* **Fox News Channel, LLC**—2 awards for children of employees of the corporation and its eligible subsidiaries.

FTS International, LLC—1 award for a Finalist from either Washington, DC, or Denver, Colorado, metropolitan areas planning to pursue certain college majors.

** This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

G

- * **GAF**—2 awards for children of employees of the corporation and its subsidiaries; the awards are distributed among divisions.
- * **Gannett Foundation, Inc.**—6 awards for children of employees of Gannett Co. Inc.
- * **Gates Industrial Corporation Foundation**—Up to 10 awards for children of employees of Gates Industrial Corporation; the awards are distributed among the employment base.
- GEICO Philanthropic Foundation**—3 awards for Finalists who are children of associates of GEICO Corporation and its subsidiaries.
- General Dynamics Corporation**—Every Finalist who is the child of an employee of the corporation or a subsidiary will be offered an award.
- * **General Dynamics Ordnance and Tactical Systems**—2 awards for children of employees of the corporation and its subsidiaries.
- * **Georgia-Pacific Foundation, Inc.**—50 awards for children of employees of Georgia-Pacific LLC and its subsidiaries within the United States; the awards are distributed among employment groups.
- * **Gleason Family Foundation**—Up to 8 awards for children of employees of Gleason Corporation and its U.S. subsidiaries and divisions.
- * **Global Tungsten & Powders Corp.**—2 awards for children of employees of Global Tungsten & Powders Corp. and GTP Group Services.
- * **W.W. Grainger, Inc.**—12 awards—10 awards for children of employees of the corporation and its U.S. subsidiaries; 2 awards for Finalists in the National Merit Scholarship Program.
- * **Greyhound Lines, Inc.**—Up to 6 awards for children of employees of the corporation and its subsidiaries.

** This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

The Guardian Life Insurance Company of America—2 awards for Finalists who are children of employees of the company and its eligible subsidiaries.

- * **(Gulfstream Aerospace Corporation) Rolls-Royce North America Inc.**—2 awards for children of employees of Gulfstream Aerospace Corporation.

H

Harris Corporation—2 awards for Finalists who are children of employees of the corporation and its subsidiaries.

- * **Hill-Rom Holdings, Inc.**—3 awards for U.S.-based student employees and children of U.S.-based employees of Hill-Rom and its subsidiaries.
- * **(Hoffmann-La Roche Inc.) Genentech, Inc.**—20 awards for children of employees of Hoffmann-La Roche Inc. and its designated subsidiaries.
- * **Hormel Foods Corporation Charitable Trust**—18 awards for children of employees of Hormel Foods Corporation and its subsidiaries.
- * **The Harvey Hubbell Foundation**—4 awards for children of employees of Hubbell Incorporated and its subsidiaries.
- * **Hunter Industries Incorporated**—2 awards for children of employees of the corporation and its subsidiaries.

I

- * **Illinois Tool Works Foundation**—Up to 30 awards for children of employees of Illinois Tool Works Inc. and its subsidiaries.
- * **Ingalls Shipbuilding Division of Huntington Ingalls Industries**—4 awards for children of employees of Ingalls Shipbuilding.

***Ingersoll-Rand Charitable Foundation—**

17 awards for children of employees of Ingersoll Rand Company and its subsidiaries.

***Insperity Services, L.P.**—4 awards—2 awards for children of corporate employees; 2 awards for children of worksite employees.

***International Union of Bricklayers and Allied Craftworkers**—3 awards for children of members of the union in good standing.

J

***J. Walter Thompson Company Fund, Inc.**—3 awards for children of employees of the company and its subsidiaries.

Jacobs Engineering Foundation—Every Finalist who is the dependent of an employee of Jacobs Engineering Group, Inc. or a subsidiary will be offered an award.

***John Bean Technologies Corporation**—2 awards for children of employees of JBT Corporation and its subsidiaries.

***Johnson & Johnson Services Inc.**—20 awards for children of employees of the corporation and its business units.

K

***Kaman Corporation**—3 awards for children of employees of the corporation and its subsidiaries.

***The Kennametal Foundation**—5 awards for children of employees of Kennametal Inc. and its subsidiaries.

L

***LANXESS Corporation**—5 awards for children of employees of LANXESS Corporation, LANXESS Solutions, Great Lakes Chemical Corporation, and each corporation's respective subsidiaries.

Leidos, Inc.—10 awards for Finalists who are children of employees of the corporation or its subsidiaries.

***Liberty Mutual Scholarship Foundation**—40 awards for children of employees of Liberty Mutual Insurance Company and its subsidiaries.

***Loews Corporation**—4 awards for children of employees of the corporation and its divisions and wholly owned subsidiaries.

***LPL Financial LLC**—9 awards—6 awards for children of associates of the corporation; 3 awards for students served through non-profit organizations designated by the corporation.

The Lubrizol Foundation—Every Finalist who is the child of an employee of The Lubrizol Corporation, Lubrizol Specialty Products, Inc., and their eligible subsidiaries will be offered an award.

M

***Macy's, Inc.**—54 awards for student employees and children of employees of Macy's, Inc. and its direct and indirect subsidiaries; the awards are distributed among divisions.

***Mannington Mills, Inc.**—2 awards for children of employees of the corporation and its eligible subsidiaries.

***Maritz Holdings Inc.**—3 awards for children of employees of the corporation and its subsidiaries.

***Marsh & McLennan Companies, Inc.**—25 awards for children of employees of the corporation and its subsidiaries.

**This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

***McGraw-Hill Global Education Holdings, LLC**—4 awards for children of employees of the corporation and its affiliates.

Mead Witter Foundation, Inc.—10 awards for Finalists from specified geographic areas of Wisconsin.

The MITRE Corporation—4 awards for Finalists who are children of employees of the corporation.

Molex LLC—2 awards for Finalists who are children of employees of the corporation and its subsidiaries.

***Moody's Foundation**—2 awards for children of employees of Moody's Corporation and its subsidiaries.

Motorola Solutions Foundation—Every Finalist who is the child of an employee of Motorola Solutions, Inc. or a subsidiary will be offered an award.

N

National Distillers Distributors Foundation—7 awards for Finalists in the National Merit Scholarship Program.

***(National Gypsum Company) C. D. Spangler Foundation, Inc.**—2 awards for children of employees of National Gypsum Company and its subsidiaries.

National Oilwell Varco, LP—Every Finalist who is the child of an employee of the corporation and its eligible subsidiaries will be offered an award.

***Nationwide Foundation**—10 awards for children of employees of Nationwide Insurance Companies and certain affiliates and associates.

***New Jersey Manufacturers Insurance Company**—At least 3 awards for children of employees of New Jersey Manufacturers Insurance Group.

New York Life Foundation—Every Finalist who is the child of an employee or agent of New York Life or certain subsidiaries will be offered an award.

***The NewMarket Foundation**—2 awards for children of employees of NewMarket Corporation and its subsidiaries.

***NextEra Energy Foundation, Inc.**—10 awards for children of employees of NextEra Energy, Inc. and its subsidiaries.

***NiSource Charitable Foundation**—15 awards for children of employees of NiSource and its subsidiaries.

***Norfolk Southern Foundation**—10 awards for children of employees of Norfolk Southern Corporation and its affiliated companies.

***Northrop Grumman Corporation**—55 awards for children of employees of the corporation and its subsidiaries.

***Novartis US Foundation**—20 awards for children of employees of Novartis Corporation and its subsidiaries and divisions.

***Novo Nordisk Inc.**—2 awards for children of employees of the corporation.

NVIDIA Corporation—Every Finalist who is the child of an employee of the corporation or an eligible subsidiary will be offered an award.

O

Occidental Petroleum Corporation—Every Finalist who is the child of an employee of the corporation or a division or subsidiary will be offered an award.

***Old National Bancorp**—3 awards for children of associates of the corporation and its entities.

****This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.***

* **OMNOVA Solutions Foundation, Inc.**—3 awards for children of employees of OMNOVA Solutions, Inc. and its subsidiaries.

* **Omron Foundation, Inc.**—Up to 5 awards for children of employees of Omron.

ON Semiconductor—Every Finalist who is the child of an employee of the corporation will be offered an award.

Owens Corning Foundation—Every Finalist who is the child of an employee of Owens Corning will be offered an award.

P

Parker Hannifin Foundation—Every Finalist who is the child of an employee of Parker Hannifin Corporation or a subsidiary will be offered an award.

Sagar G. Patel Memorial Fund—2 awards for Finalists in the National Merit Scholarship Program.

* **Frank E. Payne and Seba B. Payne Foundation**—3 awards for children or grandchildren of employees of John Crane Inc. and its domestic subsidiaries.

* **The Penn Mutual Life Insurance Company**—2 awards for children of company employees, agents, and office employees.

The PepsiCo Foundation, Inc.—Every Finalist who is the child of an employee of PepsiCo, Inc. or a division, subsidiary, or affiliate will be offered an award.

* **Pfizer Inc.**—50 awards for children of employees of the corporation and its subsidiaries.

* **Pilkington North America, Inc.**—2 awards for children of employees of the corporation and its subsidiaries.

* **PPG Foundation**—46 awards—35 awards for children of employees of PPG and its subsidiaries; 11 awards for residents of communities where PPG has operations.

* **PPL**—4 awards for children of employees of the corporation and its subsidiaries.

PricewaterhouseCoopers Charitable Foundation, Inc.—Every Finalist who is the child of a partner, principal, or staff of PricewaterhouseCoopers LLP and its subsidiaries will be offered an award.

Principal Life Insurance Company—Every Finalist who is the child of an employee of the company or a subsidiary will be offered an award.

Public Service Enterprise Group—Every Finalist who is the child of an employee of Public Service Enterprise Group or its subsidiaries will be offered an award.

* **Putnam Investments, LLC**—2 awards for children of employees of Putnam Investments and its subsidiaries.

Q

* **Quanex Foundation**—3 awards for children of employees of Quanex Building Products and its divisions and subsidiaries.

R

* **Raytheon Company**—75 awards for children of employees of the company and its eligible subsidiaries.

* **Research Triangle Institute**—2 awards for children of employees of the institute.

* **Reynolds American Foundation**—Up to 20 awards for children of employees of Reynolds American Inc. and its eligible subsidiaries.

** This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

* **Rheem Manufacturing Company**—5 awards for children of employees of the company and its subsidiaries.

Robert Half International Inc.—3 awards for Finalists who are children of employees of the corporation.

Rockwell Automation—5 awards for Finalists who are children of employees of the corporation and its subsidiaries.

Rolls-Royce North America Inc.—3 awards for Finalists who are children of employees of Rolls-Royce plc and its eligible subsidiaries.

RSM US LLP—2 awards for Finalists who are children of employees of the corporation and its eligible subsidiaries.

S

* **S&P Global**—6 awards for children of employees of the corporation and its subsidiaries.

* **Schindler Elevator Corporation**—5 awards for children of employees of the corporation.

* **Schneider Electric North America Foundation**—25 awards for children of employees of Schneider Electric North America.

* **Sensient Technologies Foundation**—3 awards for children of employees of Sensient Technologies Corporation and its divisions and subsidiaries.

* **Sentry Insurance Foundation, Inc.**—5 awards for children of employees of Sentry Insurance Group and its eligible subsidiaries.

* **Siemens Foundation**—75 awards for children of employees of Siemens Corporation and its designated affiliates.

* **Snap-on Incorporated**—6 awards for children of employees and dealers of the corporation.

Sogeti USA—Every Finalist who is the child of an employee of the corporation will be offered an award.

Solvay America—4 awards for Finalists from specified geographical areas who plan to pursue certain college majors.

* **Sony Electronics Inc.**—3 awards for children of employees of Sony Electronics Inc. and Sony Corporation of America.

South Carolina Sports Medicine & Orthopaedic Center—4 awards—first preference for Finalists who are children of employees of the practice; second preference for Finalists from the Greater Charleston Area of South Carolina.

Southern Company Services, Inc.—Every Finalist who is the child of an employee of Southern Company or a subsidiary will be offered an award.

Southwest Airlines Co.—5 awards for Finalists who are children of employees of the company.

Spirit AeroSystems, Inc.—7 awards for Finalists who are children of employees of the corporation and its eligible subsidiaries.

* **SRI International**—2 awards for children of employees of the corporation and its eligible subsidiaries.

* **State Farm Companies Foundation**—100 awards for children of employees and insurance agents of State Farm Companies.

* **Suburban Propane, L.P.**—3 awards for children of employees of the company.

** This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

T

* **Tate & Lyle Americas LLC**—2 awards for children of employees of the corporation and its affiliates.

* **TD Ameritrade Services Company, Inc.**—5 awards for children of employees of the company.

Teachers Insurance and Annuity Association of America—5 awards for Finalists who are children of employees of TIAA and its eligible subsidiaries.

* **TEGNA Foundation, Inc.**—6 awards for children of employees of TEGNA Inc.

The TeleTech Community Foundation—2 awards for Finalists who are children of employees of TTEC Holdings.

Texas Instruments Foundation—Every Finalist who is the child of an employee of Texas Instruments Incorporated will be offered an award.

* **Textron Charitable Trust**—10 awards for children of employees of Textron Inc. and its subsidiaries.

* **3M Company**—40 awards for children of employees of the company and its affiliates and subsidiaries.

* **The Travelers Employees' Club**—7 awards for children and specified relatives of members of The Travelers Employees' Club.

* **Tredegear Corporation**—3 awards for children of employees of the corporation and its subsidiaries.

U

United Services Automobile Association—Every Finalist who is the child of an employee of the company will be offered an award.

* **The UPS Foundation**—180 awards—150 awards for children of full-time employees and 30 awards for children of part-time employees of UPS and its subsidiaries.

* **USG Foundation, Inc.**—8 awards for children of employees of USG Corporation and its subsidiaries.

* **Utility Workers Union of America, AFL-CIO**—2 awards for children of members of the union.

V

Varian Medical Systems—2 awards for Finalists who are children of employees of the corporation.

Verus Claims Services, LLC—1 award for a Finalist from Mercer County, NJ.

ViaSat, Inc.—Every Finalist who is the child of an employee of the corporation will be offered an award.

* **Vulcan Materials Company Foundation**—3 awards for children of employees of Vulcan Materials Company and its subsidiaries.

W

Walgreen Co.—Every Finalist who is the child of an employee of the company will be offered an award.

Waste Management National Services Inc.—Every Finalist who is the child of an employee of Waste Management National Services Inc.'s family of companies will be offered an award.

** This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

Westlake Chemical Corporation—2 awards for Finalists who are children of employees of the corporation and its subsidiaries.

X-Z

***Zoetis Inc.**—5 awards for children of colleagues of the corporation.

**This corporate sponsor offers Special Scholarships in addition to Merit Scholarship® awards, and Entry Forms that the sponsor makes available must be filed.*

College Merit Scholarship® sponsors. The higher education institutions listed below currently are sponsors of National Merit Scholarships. The number in parentheses reflects the minimum number of Merit Scholarship awards NMSC expects the college to offer annually. However, neither the institution nor NMSC is obligated to offer these scholarships in 2020, 2021, or beyond.

A–B

Abilene Christian University (3)
 American University (5)
 Arizona State University (85)
 Auburn University (55)
 Ball State University (3)
 Baylor University (35)
 Belmont University (3)
 Bethel University (3)
 Boston College (7)
 Boston University (15)
 Bowdoin College (3)
 Bradley University (3)
 Brandeis University (10)
 Brigham Young University (10)
 Bucknell University (3)
 Butler University (3)

C–E

Calvin College (10)
 Carleton College (40)
 Case Western Reserve University (25)
 Centre College (3)
 Claremont McKenna College (8)
 Clemson University (25)
 Colby College (Maine) (3)
 College of Charleston (3)
 College of Wooster (3)
 Colorado College (6)
 Colorado State University (3)
 Creighton University (3)
 Davidson College (3)
 DePauw University (3)
 Dickinson College (3)
 Drake University (3)
 Embry-Riddle Aeronautical University,
 and identified campuses (3)
 Emory University (20)

F–H

Florida Atlantic University (3)
 Florida State University (15)
 Fordham University (3)
 Furman University (10)
 Gordon College (Massachusetts) (3)
 Goshen College (3)
 Grinnell College (15)
 Gustavus Adolphus College (3)
 Harding University (10)
 Harvey Mudd College (30)
 Hendrix College (7)
 Hillsdale College (10)
 Hope College (3)

I–N

Illinois Wesleyan University (3)
 Indiana University Bloomington (6)
 Iowa State University (25)
 Ithaca College (3)
 Kalamazoo College (3)
 Kansas State University (5)
 Kenyon College (5)
 Lawrence University (Wisconsin) (3)
 Lehigh University (3)
 Lewis & Clark College (Oregon) (3)
 Liberty University (3)
 Louisiana State University (25)
 Louisiana Tech University (3)
 Loyola University Chicago (3)
 Luther College (3)
 Macalester College (25)
 Marquette University (3)
 Miami University-Oxford (15)
 Michigan State University (35)
 Michigan Technological University (3)
 Mississippi State University (10)
 Missouri University of Science and Technology (9)
 Montana State University-Bozeman (3)
 New College of Florida (3)
 North Dakota State University (5)
 Northeastern University (Massachusetts) (3)
 Northwestern University (50)

O–R

Oberlin College (25)
Occidental College (3)
Ohio University–Athens (3)
Oklahoma Christian University (3)
Oklahoma City University (3)
Oklahoma State University (10)
Franklin W. Olin College of Engineering (3)
Oregon State University (5)
Ouachita Baptist University (3)
Pennsylvania State University,
and identified campuses (5)
Pepperdine University (3)
Pomona College (6)
Purdue University (30)
Rensselaer Polytechnic Institute (15)
Rhodes College (11)
Rochester Institute of Technology (10)
Rose-Hulman Institute of Technology (15)
Rutgers, The State University of New Jersey,
and identified campuses (15)

S–T

Saint Louis University (3)
St. Olaf College (15)
Samford University (3)
Santa Clara University (4)
Scripps College (3)
South Dakota School of Mines and Technology (3)
South Dakota State University (3)
Southern Methodist University (15)
Southwestern University (Texas) (3)
Stony Brook University (3)
Tennessee Technological University (3)
Texas A&M University, and identified campuses (110)
Texas Christian University (3)
Texas Tech University (3)
Trinity University (Texas) (3)
Truman State University (3)
Tufts University (10)
Tulane University (20)

U

University of Alabama at Birmingham (5)
University of Alabama at Tuscaloosa (115)
University of Arizona (55)
University of Arkansas, Fayetteville (30)
University of Central Florida (10)
University of Chicago (60)
University of Cincinnati (10)
University of Dallas (10)
University of Dayton (3)
University of Evansville (3)
University of Florida (20)
University of Georgia Foundation (20)
University of Houston–Main Campus (10)
University of Idaho (15)
University of Iowa (20)
University of Kansas (28)
University of Kentucky (75)
University of Louisville (12)
University of Maine (3)
University of Maryland,
and identified campuses (15)
University of Miami (15)
University of Minnesota,
and identified campuses (36)
University of Mississippi (10)
University of Missouri–Columbia (20)
University of Montana–Missoula (3)
University of Nebraska–Lincoln (20)
University of Nevada, Las Vegas (3)
University of Nevada, Reno (3)
University of New Mexico (3)
University of North Dakota (3)
University of North Texas (3)
University of Oklahoma,
and identified campuses (75)
University of Oregon (6)
University of Pittsburgh (3)
University of Puget Sound (3)
University of Richmond (5)
University of Rochester, and identified campuses (20)
University of St. Thomas (Minnesota) (3)

University of South Carolina (8)
University of South Florida (12)
University of Southern California (35)
University of Southern Mississippi (3)
University of Tennessee, Knoxville (15)
University of Texas at Dallas (100)
University of Tulsa (25)
University of Utah (20)
University of Wisconsin-Eau Claire (3)
University of Wisconsin-Madison (5)
University of Wyoming (3)

V-Z

Valparaiso University (3)
Vanderbilt University (18)
Villanova University (5)
Virginia Commonwealth University (3)
Washington and Lee University (15)
Washington State University (3)
Wayne State University (Michigan) (3)
West Virginia University Foundation, Inc. (12)
Western Washington University (3)
Wheaton College (Illinois) (20)
Whitman College (3)
Wichita State University (3)
Willamette University (3)
Wofford College (3)

**End of the National Merit® Scholarship Program Section.
Turn book over for the Test-Taking Help Section.**