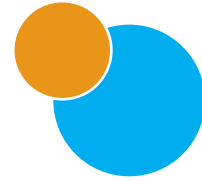


2012



Official Student Guide to the
PSAT/NMSQT[®]
Preliminary SAT/National Merit Scholarship Qualifying Test

Scholarship Competitions

- **National Merit**[®] **Scholarship Program**, page 2
- **National Achievement**[®] **Scholarship Program**, page 20

conducted by [National Merit Scholarship Corporation](http://www.nationalmerit.org)

www.nationalmerit.org

Preliminary SAT/National Merit Scholarship Qualifying Test
cosponsored by



Flip this book over for
Test-Taking Help

Types of Test Questions

Practice Test
(Separate Pull-Out Booklet)



National Merit® Scholarship Program

To enter the National Merit Scholarship Program and compete for recognition and 9,600 scholarships to be offered in 2014:

- Take the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT®) in October 2012.

Program entrants must take the test in the specified year of the high school program (see page 5). The 2012 PSAT/NMSQT is the qualifying test for entry to the 2014 program. Most entrants will complete high school and enroll in college in 2014.

- Meet other entry requirements.

Important information about the 2014 National Merit Scholarship Program:

Entry Requirements	4
Program Recognition	5
Types of Scholarships	7
Scholarship Sponsors	
Corporations and Business Organizations	8
Colleges and Universities	18

Note: Information about participation in the National Achievement® Scholarship Program begins on page 20.

Want more information?

Read on. 

Visit NMSC's website: www.nationalmerit.org

Write: National Merit Scholarship Corporation (NMSC)
1560 Sherman Avenue, Suite 200
Evanston, IL 60201-4897

Telephone: (847) 866-5100

National Merit, National Achievement, Merit Scholarship, Achievement Scholarship, Merit Scholar, Achievement Scholar, and the corporate logo are federally registered service marks of National Merit Scholarship Corporation (NMSC). NMSC pages 1–23 © 2012 National Merit Scholarship Corporation. All rights reserved.

Steps in the 2014 National Merit® Scholarship Competition

1,500,000 Entrants. In October 2012, 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 2014 competition for National Merit Scholarship Program recognition and scholarships. Nearly all program participants (entrants) will be juniors planning to enter college in 2014.

PARTICIPANTS WHO QUALIFY FOR NATIONAL MERIT PROGRAM RECOGNITION

50,000 High Scorers. NMSC uses PSAT/NMSQT Selection Index scores (the sum of critical reading, mathematics, and writing skills scores) to determine participants who qualify for program recognition. In April 2013, high-scoring participants from every state will be offered the opportunity to be referred to colleges and universities by NMSC.

34,000 Commended Students. In late September 2013, 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 2013, nearly 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 2014.

15,000 Finalists. In February 2014, 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

1,300 Special Scholarship recipients. Beginning in March 2014, NMSC will notify winners of Special Scholarships provided by corporate sponsors. Recipients, chosen from candidates sent scholarship application materials in December 2013, will be outstanding students (although not Finalists) who meet their sponsors' eligibility criteria. Sponsors will handle public announcement of their Special Scholarship winners.

8,300 Merit Scholarship® winners. Beginning in March 2014, 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, and July, NMSC will release names of Merit Scholar designees to news media for public announcement.

The 2014 Competition Begins in 2012

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 2012 Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT®) is the qualifying test for entry to the 2014 National Merit Program. The competition will span about 18 months from entry in October 2012 until the spring of 2014 when scholarships for college undergraduate study will be awarded. It is expected that about 3.5 million students will take the PSAT/NMSQT in 2012, and approximately 1.5 million of them will meet requirements to enter this program.

Entry Requirements

To enter the 2014 National Merit Program, a student must meet **all** of the following requirements. He or she must:

1. be enrolled as a high school student, progressing normally toward graduation or completion of high school by 2014, and planning to enter college no later than the fall of 2014;
2. 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 (see below for documentation required from scholarship candidates who have not yet become U.S. citizens); and

3. take the 2012 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 the next section).

A student's responses to *Section 13* items "a" through "d" of the 2012 PSAT/NMSQT Answer Sheet (see below) are used to determine whether he or she meets these requirements.

<p>13a. Are you enrolled as a high school student?</p> <p><input type="radio"/> Yes <input type="radio"/> No</p>
<p>13b. When will you complete or leave high school and enroll full time in college?</p> <p><input type="radio"/> 2013 <input type="radio"/> after 2015 <input type="radio"/> 2014 <input type="radio"/> Not planning to attend college <input type="radio"/> 2015</p>
<p>13c. How many years will you spend in grades 9 through 12?</p> <p><input type="radio"/> 4 years <input type="radio"/> 1 year <input type="radio"/> 3 years <input type="radio"/> 5 or more years <input type="radio"/> 2 years</p>
<p>13d. Are you a citizen of the United States?</p> <p><input type="radio"/> Yes <input type="radio"/> 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. <input type="radio"/> No</p>

The NMSC programs section of the PSAT/NMSQT Score Report shows the student's responses to these questions and whether entry requirements have been met.

Not yet a U.S. citizen?

If you qualify to continue in the 2014 competition (as a Semifinalist or Special Scholarship candidate) **and** you have not yet become a U.S. citizen, you will be required to send the following documentation to NMSC with your Scholarship Application:

- A letter signed by you explaining your plans for becoming a citizen, including the date on which you expect to be eligible and will apply for U.S. citizenship

AND

- **If you are a U.S. lawful permanent resident**, a copy of your Permanent Resident Card (Green Card); or a copy of your passport including the identity/biographical page and the "I-551" stamp showing that you have been granted lawful permanent resident status

OR

- **If you have applied for U.S. lawful permanent residence**, a copy of Form I-797 Receipt Notice from U.S. Citizenship and Immigration Services (CIS) that verifies you filed the "Application to Register Permanent Residence or Adjust Status" (Form I-485). **Note:** Form I-797 Receipt Notice must be received by NMSC on or before January 31, 2014.

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 2012 PSAT/NMSQT but plan to spend four years in grades 9 through 12 will **not** meet entry requirements for the 2014 National Merit Program. They must take the PSAT/NMSQT again in 2013 (when they are juniors) to enter the competition that will end when scholarships are awarded in 2015, 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 2014 competition, these students must be in either the *next-to-last* or the *last year* of high school when they take the 2012 PSAT/NMSQT:

- a) if they are in the *next-to-last year* of high school when they take the 2012 PSAT/NMSQT, they will be finishing their last high school year when awards are offered in 2014; or
- b) if they are in their *last year* of high school when they take the 2012 PSAT/NMSQT, they will be completing their first year of college when scholarships are awarded in 2014.

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 2014, these students must be in their third year of high school when they take the 2012 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.

Note: If your high school standing and enrollment do not fit one of the preceding descriptions (1, 2, or 3) because you plan to spend more than four years in grades 9 through 12, or for any other reason, contact NMSC immediately about entry to the National Merit Program.

Unable to Take the PSAT/NMSQT?

If you do not take the 2012 PSAT/NMSQT because of illness, an emergency, or other extenuating circumstance, you may still be able to enter NMSC's 2014 competitions. To request information about another route of entry after the October 2012 PSAT/NMSQT administration, WRITE to NMSC as soon as possible but no later than March 1, 2013. **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: Educational Services
1560 Sherman Avenue, Suite 200
Evanston, IL 60201-4897

Your letter must be postmarked on or before March 1, 2013 for your request to be considered.

If you do not want your 2012 PSAT/NMSQT scores used for participation in NMSC's 2014 programs due to an irregularity that occurred when you took the test, you must contact NMSC immediately but no later than November 15, 2012 to submit a formal request. Requests received after November 15, 2012 will not be considered.

Program Recognition

NMSC uses PSAT/NMSQT Selection Index scores (the sum of the critical reading, mathematics, and writing skills scores) as an initial screen of some 1.5 million program entrants. The 2012 test scores of all students who meet entry requirements for the 2014 program will be considered. Entrants whose scores qualify them for recognition will be contacted by NMSC through their high schools.

In April 2013, approximately 50,000 program participants with the highest Selection Index scores will be given the opportunity to be referred to U.S. colleges and universities by NMSC. The purpose of this free and optional referral service is to encourage college officials to contact these scholastically talented students about opportunities for admission and financial aid.

Commended Students. In September 2013, 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. This qualifying score is generally within the 96th percentile of college-bound juniors who take the PSAT/NMSQT.

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 8). NMSC will contact those candidates in December 2013.

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 2013. 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 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 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 territo-

ries, 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. Approximately 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 4);
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® 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.

Only Finalists will be considered for the 8,300 National Merit Scholarships. Before receiving an award, a Finalist must (a) notify NMSC of plans to enroll in a college or university in the United States that holds accredited status with a regional accrediting commission on higher education, and (b) plan to 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, virtual universities, and certain institutions that are limited in their purposes or training.

Choosing Scholarship Winners

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.

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 8,300 National Merit Scholarships of three types and approximately 1,300 Special Scholarships will be awarded in 2014; these 9,600 awards will have a combined value of more than \$44 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 units. 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

A Total of 9,600 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 one-time or renewable. (See chart on page 8.)	Varies by sponsor—awards can be one-time or renewable. (See chart on page 8.)	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	Late April

help underwrite these awards with grants they provide to NMSC in lieu of paying administrative fees.

Corporate-sponsored scholarships. In 2012, about 240 corporations, company foundations, and businesses sponsored scholarships through the National Merit Program as part of their educational philanthropy. These sponsors committed \$19 million to support more than 1,000 corporate-sponsored Merit Scholarship awards and 1,300 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 stipends that can be renewed for up to four years of college undergraduate study. Although financial need is not considered in the selection of winners, some corporate-sponsored renewable scholarships provide variable stipends that are individually determined, taking into account college costs and family financial circumstances.

Type of Award	Type of Stipend	Stipend Ranges
Renewable	Variable	\$500–\$10,000 per year
Renewable	Fixed	\$1,000–\$5,000 per year
One-time	Single-payment	\$2,500–\$5,000

College-sponsored Merit Scholarships. In the 2014 competition, it is expected that about 4,800 National Merit Scholarships will be offered to Finalists who plan to attend a sponsor college or university. (See the list of some 200 colleges that currently are Merit Scholarship sponsors beginning on page 18.) 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. College officials also determine each winner's stipend within a range of \$500 to \$2,000 per year. The college may meet some of a winner's financial need with an aid package that includes loans, employment, and grants; however, the Merit Scholarship stipend must represent at least half the winner's need, up to the annual stipend maximum of \$2,000, unless the student's total need (as calculated by the college) is met with gift aid.

Scholarship Sponsors

Approximately 440 independent organizations and institutions sponsor over 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 2013, 2014, or beyond.

- * **Accenture LLP**—6 awards for children of employees of Accenture LLP.
- * **The Acushnet Company, Inc.**—3 awards for children of employees of the company and its subsidiaries.
- * **ADP Foundation**—37 awards for children of employees of Automatic Data Processing, Inc.
- Air Products and Chemicals, Inc.**—Every Finalist who is the child of an employee of the corporation or a subsidiary 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.*

* **Akzo Nobel Inc.**—6 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.

* **The Allergan Foundation**—6 awards for children of employees of Allergan, Inc. and its eligible subsidiaries.

Allscripts Solutions, Inc.—3 awards for Finalists who are children of employees of the corporation.

* **Ameren Corporation Charitable Trust**—5 awards for children of employees of Ameren Corporation.

* **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.

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

* **Aon Foundation**—8 awards for children of employees of Aon Corporation and its subsidiaries.

Apache Corporation—2 awards for Finalists who are 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.

* **Armstrong Foundation**—Up to 25 awards for children of employees of Armstrong World Industries, Inc. and its subsidiaries.

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

ASM Materials Education Foundation—1 award for a Finalist who plans a career in the field of materials engineering.

* **Astellas US LLC**—2 awards for children of employees of the corporation.

* **AstraZeneca Pharmaceuticals LP**—10 awards for children of employees of the corporation.

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.

* **Bayer USA Foundation**—25 awards for children of employees of Bayer Corporation.

Bentley Systems, Incorporated—For all Finalists who are children of colleagues of the corporation.

Mary E. Beyerle Trust—8 awards for Finalists from Maryland, New Jersey, and Pennsylvania.

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

* **BMC Software, Inc.**—6 awards for children of employees of the corporation and its subsidiaries.

BNSF 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.

BookItOut, Inc.—1 award for a Finalist from Colorado, Florida, or Georgia who plans to pursue a certain college major.

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

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

Corporate scholarship sponsors
(continued)

- * **BP Foundation, Inc.**—Up to 50 awards for children of employees and annuitants of BP, plc and its wholly owned subsidiaries.
- * **Branch Banking & Trust Company**—10 awards for children of employees of BB&T.
- * **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.**—4 awards for children of employees of the corporation and its qualifying subsidiaries.
- * **Brocade Communications Systems, Inc.**—5 awards for children of employees of the corporation.
- * **Brooks Brothers Group, Inc.**—2 awards for children of employees of the corporation and its 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, Inc.**—5 awards for children of employees of the corporation and its subsidiaries.

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

Cardinal Health Foundation—Every Finalist who is the child of an employee of Cardinal Health, Inc. or a participating affiliate will be offered an award.

- * **Carlisle Companies Incorporated**—2 awards for children of employees of the corporation and its subsidiaries.
- * **Carpenter Technology Corporation**—3 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.*

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

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

Chevron U.S.A. Inc.—10 awards—8 awards for Finalists who are children of employees of the corporation and its affiliated companies; 2 awards for other Finalists planning to major in geological and earth sciences/geosciences, geological/geophysical, or petroleum engineering.

Chico's FAS, Inc.—2 awards for Finalists who are children of employees of the corporation and its subsidiaries.

- * **Colgate-Palmolive Company**—10 awards for children of employees of the company and its subsidiaries.
- * **Collective Brands Foundation**—5 awards for children of employees of the corporation and its subsidiaries.

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

ConAgra Foods Foundation—Up to 10 awards for Finalists who are children of employees of ConAgra Foods, Inc. and its subsidiaries.

- * **CONSOL Energy Inc.**—16 awards for children of employees of the corporation and its designated subsidiaries.

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

- * **COUNTRY Financial**—5 awards for children of COUNTRY employees.

- * **Covidien**—20 awards for children of employees of Covidien and its subsidiaries.

CSX Corporation—10 awards—5 awards for Finalists who are children of employees of the corporation; 5 awards for Finalists from the Jacksonville, Florida area who plan to pursue certain college majors.

- * **Cytec Industries Inc.**—4 awards for children of employees of the corporation and its subsidiaries.

The Delphi Foundation—4 awards for Finalists who are children of employees of Delphi Automotive System LLC and its subsidiaries.

- * **Dole Food Company, Inc.**—2 awards for children of employees of the corporation and its subsidiaries.
- * **R. R. Donnelley Foundation**—16 awards for children of employees of the company and its subsidiaries.

The Dow Chemical Company Foundation—15 awards for Finalists who are children of employees of the company and its subsidiaries.

- * **Dow Jones Foundation**—Up to 25 awards for children of employees of Dow Jones & Company, Inc. and its wholly owned subsidiaries.

E*TRADE Financial—2 awards for Finalists who are children of employees of the corporation.

Eastman Chemical Company Foundation, Inc.—8 awards for Finalists who are children of employees of Eastman Chemical Company and its subsidiaries.

- * **Eaton Charitable Fund**—15 awards for children of employees of Eaton Corporation.
- * **Electrolux North America**—2 awards for children of employees of the corporation and its subsidiaries.

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

- * **Estee Lauder Companies, Inc.**—3 awards for children of employees of the corporation and its U.S. affiliates and subsidiaries.
- * **ETHICON, INC.**—2 awards for children of employees of the corporation.

* **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.**—6 awards for children of employees of the corporation.

* **Ferro Foundation**—2 awards for children of employees of Ferro Corporation.

* **Fifth Third Foundation**—17 awards for children of employees of Fifth Third Bank.

* **FIL Holdings Corporation Inc.**—2 awards for children of employees of the corporation and its subsidiaries.

Fluor Foundation—4 awards for Finalists who are children of employees of Fluor.

- * **FMC Corporation**—3 awards for children of employees of the corporation and its subsidiaries.
- * **FMC Technologies, Inc.**—2 awards for children of employees of the corporation and its affiliated businesses.

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.

* **GAF Materials Corporation**—2 awards for children of employees of the corporation and its subsidiaries; the awards are distributed among divisions.

* **Gannett Foundation, Inc.**—12 awards for children of employees of Gannett Co. Inc.

GEICO Philanthropic Foundation—3 awards for Finalists who are children of associates of GEICO Corporation and its subsidiaries.

* **GenCorp Foundation, Incorporated**—5 awards for children of employees of GenCorp 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.*

Corporate scholarship sponsors (continued)

General Dynamics—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.

General Mills Foundation—Up to 10 awards for Finalists who are children of employees of General Mills, Inc. 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 divisions.
- * **GKN Foundation**—5 awards for children of employees of GKN America Corp. and its subsidiaries.
- * **Gleason 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 the corporation.

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

- * **The Goodyear Tire & Rubber Company**—8 awards for children of employees of the company.
- * **W.W. Grainger, Inc.**—10 awards for children of employees of the corporation and its U.S. subsidiaries.
- * **Greyhound Lines, Inc.**—Up to 6 awards for children of employees of the corporation and its subsidiaries.
- * **(Gulfstream Aerospace Corporation) Rolls-Royce North America Inc.**—2 awards for children of employees of Gulfstream Aerospace Corporation.

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

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

- * **Harsco Corporation Fund**—Up to 12 awards for children of employees of the corporation and its subsidiaries.

- * **H. J. Heinz Company Foundation**—6 awards for children of employees of the company and its affiliates.

- * **Henkel of America, Inc.**—6 awards for children of employees of the corporation and its subsidiaries.

- * **Hoffmann-La Roche Inc.**—24 awards for children of employees of the corporation and its designated subsidiaries.

Honeywell International, Inc.—25 awards for Finalists who are children of employees of the corporation and its subsidiaries.

- * **Hormel Foods Charitable Trust**—18 awards for children of employees of Hormel Foods Corporation and its subsidiaries.

- * **Houghton Mifflin Harcourt**—2 awards for children of employees of the company and its subsidiaries.

- * **The Harvey Hubbell Foundation**—4 awards for children of employees of Hubbell Incorporated and its subsidiaries.

- * **Illinois Tool Works Foundation**—30 awards for children of employees of Illinois Tool Works Inc. and its subsidiaries.

- * **Ingalls Shipbuilding Division of Huntington Ingalls Incorporated**—4 awards for the children of employees of Ingalls Shipbuilding.

- * **Ingersoll-Rand Charitable Foundation**—17 awards for children of employees of Ingersoll Rand Company and its subsidiaries.

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

- * **Intermec Foundation**—10 awards for children of employees of Intermec Technologies Corporation.

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

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.

- * **Janssen Pharmaceuticals, Inc.**—5 awards for the children of employees of the corporation.
- * **Janssen Research & Development, LLC**—3 awards for children of employees of the corporation.
- * **Janssen Supply Chain**—4 awards for children of employees of the organization.
- * **John Bean Technologies Corporation**—2 awards for children of employees of JBT Corporation and its subsidiaries.
- * **Johnson & Johnson Consumer Companies, Inc.**—6 awards for children of employees of the corporation and its participating companies.
- * **Johnson & Johnson World Headquarters**—2 awards for children of employees of Johnson & Johnson World Headquarters.

-
- * **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.

Knovel—2 awards for Finalists from specified geographical areas who plan to pursue a major in mechanical, design, or civil engineering.

-
- * **LANXESS Corporation**—2 awards for children of employees of the corporation and its subsidiaries.
 - * **Lennox International Inc.**—18 awards for children of employees of the corporation.
 - * **Liberty Mutual Scholarship Foundation**—14 awards for children of employees of Liberty Mutual Insurance Company 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.*

LMI Aerospace, Inc.—2 awards for Finalists from specified geographical areas who plan to pursue certain college majors.

- * **Lockheed Martin Corporation Foundation**—100 awards for children of employees of Lockheed Martin and its subsidiaries.
- * **Loews Foundation**—4 awards for children of employees of Loews Corporation and its divisions and wholly owned subsidiaries.
- * **Lord & Taylor Foundation**—2 awards for student associates and children of associates of Lord & Taylor LLC.
- * **Lorillard Tobacco Company**—8 awards for children of employees of the company and its subsidiaries.
- * **LPL Financial**—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 or a U.S. subsidiary will be offered an award.

- * **Luxottica Retail North America Inc.**—8 awards for children of employees of the corporation.

-
- * **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.

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

- * **Marsh & McLennan Companies, Inc.**—20 awards for children of employees of the corporation and its subsidiaries.

McDonald's Corporation—5 awards for Finalists who are children of employees of the corporation and its subsidiaries.

- * **McKesson Foundation Inc.**—20 awards for children of employees of McKesson and its divisions and subsidiaries.

Corporate scholarship sponsors
(continued)

- * **Mead Johnson & Company, LLC**—2 awards for children of employees of the company.

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

Medline Industries, Inc.—1 award for a Finalist who is the child of an employee of the corporation.

Glenn and Ruth Mengle Foundation—Up to 4 awards for Finalists from three Pennsylvania counties—Clearfield, Elk, and Jefferson.

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

The MITRE Corporation—2 awards for Finalists who are children of employees of the corporation.

- * **The Modine Manufacturing Company Foundation, Inc.**—2 awards for children of employees of Modine Manufacturing Company and its divisions and subsidiaries.

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

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

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

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.

- * **Nationwide Foundation**—10 awards—6 awards for children of employees of Nationwide Insurance Companies and certain affiliates and associates; 4 awards for children of career agents.

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

Navistar Foundation—1 award for a Finalist who is a child of an employee of the Navistar International Corporation.

- * **New Jersey Manufacturers Insurance Group**—At least 2 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**—60 awards for children of employees of the corporation and its subsidiaries.

- * **Novartis US Foundation**—40 awards for children of employees of Novartis Corporation and its subsidiaries.

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

- * **NSTAR Foundation**—2 awards for children of employees of NSTAR and its subsidiaries.

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.

O'Donnell Foundation—2 awards for Finalists from specified high schools located in Texas.

- * **Old National Bank Foundation**—3 awards for children of associates of Old National Bancorp and its entities.

Olin Corporation Charitable Trust—Every Finalist who is the child of an employee of Olin Corporation or a subsidiary will be offered an award.

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

Omron Foundation, Inc.—5 awards for Finalists with preference (1st) for those who are children of employees of Omron; (2nd) for those from Illinois or Michigan intending to major in electrical engineering, science, or mathematics.

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

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

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

* **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.

PepsiCo Foundation, Inc.—Every Finalist who is the child of an employee of PepsiCo, Inc. or a division or subsidiary 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 Industries Foundation**—59 awards—40 awards for children of employees of PPG Industries, Inc. and its subsidiaries; 19 awards for residents of communities where PPG has operations.

* **PPG Industries, Inc.**—2 awards for children of employees of Platinum Distributors of PPG Industries, Inc.

* **PPL**—4 awards for children of employees 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.*

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

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

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

* **Rexam Inc. Foundation**—2 awards for children of employees of Rexam Inc. and its subsidiaries.

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

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

* **Robbins & Myers Foundation**—1 award for a child of an employee of Robbins & Myers, Inc. or one of its subsidiaries.

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

Rockwell Collins—8 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.

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

SAP America, Inc.—Every Finalist who is the child of a U.S.-based employee of SAP and its entities will be offered an award.

Corporate scholarship sponsors
(continued)

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

* **Schneider Electric North America Foundation**—16 awards for children of employees of Schneider Electric North America.

Schweinburg Fund—3 awards for Finalists from New York City high schools.

Science Applications International Corporation—10 awards for Finalists who are children of employees of SAIC and its subsidiaries.

* **Scripps Howard Foundation**—5 awards for children of employees of Scripps Howard and its subsidiaries.

* **Scripps Networks Interactive, Inc.**—2 awards for children of employees of the corporation and its divisions and subsidiaries.

* **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.

The Shaw Group, Inc.—Every Finalist who is the child of an employee of the corporation or a subsidiary will be offered an award.

* **Siemens Foundation**—125 awards for children of employees and dealers of the Siemens Corporation and its designated subsidiaries.

* **Snap-on Incorporated**—5 awards for children of employees and dealers of the corporation.

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

Solvay North America, LLC—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.

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.

* **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.

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

Taylor Publishing Company—1 award for a Finalist who is a member of a client yearbook staff.

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

Telcordia Technologies—Every Finalist who is the child of an employee of Telcordia or a participating subsidiary will be offered an award.

Tellabs Foundation—2 awards for Finalists who are children of employees of Tellabs, Inc. and its wholly owned subsidiaries.

* **Teradata Corporation**—4 awards for children of employees of the corporation.

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

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

* **J. Walter Thompson Company Fund, Inc.**—2 awards for children of employees of the company and its subsidiaries.

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

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

* **Tomkins Corporation Foundation**—10 awards—5 awards for children of salaried employees of Tomkins Corporation and Gates Corporation and their subsidiaries; 5 awards for children of hourly employees.

Towers Watson and Company—1 award for a Finalist who is a child of an employee of the company.

* **The Travelers Employees Club**—5 awards for children and specified relatives of members of The Travelers Employees Club.

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

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

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

* **United States Fire Insurance Company**—2 awards for children of employees of Crum&Forster.

* **The UPS Foundation**—125 awards—100 awards for children of full-time employees and 25 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.

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

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

Walgreen Co.—Every Finalist who is the child of an employee of the company 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.*

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

* **Wirtz Corporation**—5 awards for children of employees of the corporation and its subsidiaries.

* **Wm. Wrigley Jr. Company**—7 awards for children of employees of the company and its subsidiaries.

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

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 2013, 2014, or beyond.

Abilene Christian University (3)	Earlham College (3)	Macalester College (35)
Alma College (3)	Emory University (20)	Marquette University (3)
American University (10)	Florida State University (15)	Messiah College (3)
Arizona State University, all campuses (85)	Fordham University, all campuses (3)	Miami University (15)
Auburn University (60)	Franklin and Marshall College (3)	Michigan State University (35)
Austin College (3)	Furman University (15)	Michigan Technological University (3)
Ball State University (3)	George Washington University (15)	Mississippi State University (10)
Baylor University (35)	Georgia Institute of Technology (85)	Missouri University of Science and Technology (9)
Bethel University (Minnesota) (3)	Gonzaga University (3)	Montana State University- Bozeman (3)
Birmingham-Southern College (3)	Gordon College (Massachusetts) (3)	New College of Florida (3)
Boston College (7)	Goshen College (3)	North Dakota State University (3)
Boston University (15)	Grinnell College (15)	Northeastern University (3)
Bowdoin College (3)	Gustavus Adolphus College (10)	Northwestern University (50)
Bradley University (3)	Hamline University (3)	
Brandeis University (20)	Hampshire College (3)	Oberlin College (40)
Brigham Young University (10)	Harding University (10)	Occidental College (3)
Bucknell University (3)	Harvey Mudd College (30)	Ohio State University, all campuses (90)
Butler University (3)	Hendrix College (7)	Ohio University (6)
	Hillsdale College (3)	Oklahoma Christian University (3)
	Hope College (6)	Oklahoma City University (3)
		Oklahoma State University (10)
Calvin College (16)	Illinois Wesleyan University (5)	Franklin W. Olin College of Engineering (3)
Carleton College (75)	Indiana University Bloomington (6)	Oregon State University (5)
Case Western Reserve University (25)	Iowa State University (35)	Ouachita Baptist University (3)
Centre College (3)	Ithaca College (3)	Pennsylvania State University, all campuses (5)
Claremont McKenna College (8)	Kalamazoo College (3)	Pepperdine University (5)
Clemson University (3)	Kansas State University (5)	Pomona College (6)
Colby College (Maine) (3)	Kenyon College (5)	Rensselaer Polytechnic Institute (15)
College of Charleston (3)	Knox College (3)	Rhodes College (11)
College of Wooster (3)	Lawrence University (Wisconsin) (3)	Rice University (50)
Colorado College (6)	Lehigh University (3)	Rochester Institute of Technology (7)
Colorado State University (3)	Lewis & Clark College (5)	Rose-Hulman Institute of Technology (15)
Concordia College (Minnesota) (3)	Liberty University (3)	Rutgers, The State University of New Jersey, all campuses (15)
Creighton University (3)	Louisiana State University (25)	
Davidson College (3)	Louisiana Tech University (3)	
Denison University (3)	Loyola University Chicago (3)	
DePauw University (10)	Luther College (3)	
Dickinson College (3)		
Drake University (3)		

Saint Louis University (3)
St. Olaf College (20)
Samford University (5)
Santa Clara University (4)
Scripps College (3)
South Dakota State University (3)
Southern Methodist University (15)
Southwestern University (3)
Stony Brook University (3)
Tennessee Technological
University (3)
Texas A&M University (110)
Texas Christian University (3)
Texas Tech University (3)
Transylvania University (3)
Trinity University (3)
Truman State University (3)
Tufts University (10)
Tulane University (20)

University of Alabama at
Birmingham (5)
University of Alabama at
Tuscaloosa (30)
University of Arizona (55)
University of Arkansas,
Fayetteville (20)
University of Central Florida (10)
University of Chicago (60)
University of Cincinnati (10)
University of Dallas (15)
University of Dayton (12)
University of Evansville (3)
University of Florida (70)
University of Georgia
Foundation (20)
University of Houston (10)
University of Idaho (15)
University of Illinois at Urbana-
Champaign (50)
University of Iowa (20)
University of Kansas (28)

University of Kentucky (10)
University of Louisville (12)
University of Maine (3)
University of Maryland,
all campuses (15)
University of Miami (15)
University of Minnesota,
all campuses (36)
University of Mississippi (10)
University of Missouri-
Columbia (20)
University of Montana (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 Carolina at
Chapel Hill (110)
University of North Dakota (3)
University of North Texas (3)
University of Oklahoma,
all campuses (30)
University of Oregon (6)
University of Pittsburgh (3)
University of Puget Sound (3)
University of Richmond (10)
University of Rochester (20)
University of St. Thomas
(Minnesota) (3)
University of the South (5)
University of South Carolina,
all campuses (8)
University of South Florida (12)
University of Southern
California (35)
University of Southern
Mississippi (5)
University of Tennessee (15)
University of Texas at Dallas (24)
University of Tulsa (55)
University of Utah (20)
University of Vermont (3)
University of Wisconsin-
Eau Claire (3)
University of Wisconsin-Madison (5)

University of Wyoming (3)
Ursinus College (3)

Valparaiso University (3)
Vanderbilt University (18)
Villanova University (5)
Virginia Polytechnic Institute and
State University (15)
Wabash College (3)
Washington and Lee University (15)
Washington State University (3)
Washington University
in St. Louis (50)
Wayne State University
(Michigan) (10)
West Virginia University
Foundation, Inc. (12)
Western Washington University (3)
Westminster College (Utah) (3)
Westmont College (3)
Wheaton College (Illinois) (25)
Whitman College (5)
Whitworth University (3)
Wichita State University (3)
Willamette University (6)
Wofford College (3)
Worcester Polytechnic Institute (10)
Xavier University (Ohio) (3)



National Achievement[®] Scholarship Program

The National Achievement Scholarship Program was established in 1964 specifically to provide recognition for outstanding Black American high school students and to encourage them in their pursuit of higher education. This academic competition is conducted by National Merit Scholarship Corporation (NMSC).

Black students who meet program entry requirements may enter the National Achievement Program in addition to the National Merit[®] Scholarship Program by specifically

requesting consideration in the National Achievement Program when they take the Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT[®]). The two programs are conducted concurrently; however, a student's standing in each program is determined independently. Black students can qualify for recognition, become candidates for awards, and be honored as Scholars in both competitions, but they can receive only one monetary award from NMSC.

Steps in the 2014 National Achievement[®] Scholarship Competition

160,000 Entrants. In October 2012, Black Americans who take the PSAT/NMSQT[®], complete *Section 14* on the answer sheet, and meet all other participation requirements will enter the 2014 competition for recognition and National Achievement Scholarships. Nearly all participants (entrants) will be juniors planning to enter college in 2014.

High school principals will be asked to notify NMSC in the spring of 2013 of any error in their students' requests to enter the National Achievement Scholarship Program.

PARTICIPANTS WHO QUALIFY FOR NATIONAL ACHIEVEMENT PROGRAM RECOGNITION

3,100 Outstanding Participants Referred to Colleges.

In late September 2013, U.S. colleges and universities will be sent a list of National Achievement Program participants who have demonstrated potential for academic success. These Outstanding Participants will be sent certificates through their schools, but they will not continue in the competition for National Achievement Scholarships.

1,600 Semifinalists. In early September 2013, participants who qualify as Semifinalists will be notified. They will receive National Achievement Scholarship Application materials explaining requirements to advance in the competition for awards to be offered in 2014.

1,300 Finalists. In late January 2014, Semifinalists who advance to Finalist standing will be notified. All National Achievement Scholarship winners will be selected from this group of Finalists, based on information submitted about their abilities, accomplishments, and goals.

800 Achievement Scholarship[®] winners. Beginning in February 2014, the National Achievement Program will notify winners of:

- National Achievement[®] \$2500 Scholarships and
- Corporate-sponsored scholarships

In early April, the names of Achievement Scholar[®] designees will be released to news media for public announcement.

Program Entry

Over 160,000 students currently enter each annual National Achievement Scholarship Program. To participate in the 2014 competition, interested students must take the 2012 PSAT/NMSQT, meet all requirements for entry to the National Merit Program listed on page 4, and request consideration in the National Achievement Program by completing *Section 14* of the test answer sheet.

14. If you are a Black American and wish to enter the National Achievement® Program as well as the National Merit® Program, fill in this circle.



Because the program is open only to Black American students, high school officials are contacted before high performing participants receive public recognition and asked to confirm their students' participation requests.

The 2014 competition is explained in greater detail in sections that follow. If you have a question that is not answered in this *Student Guide*, talk with your counselor or contact:

National Achievement Scholarship Program
1560 Sherman Avenue, Suite 200
Evanston, IL 60201-4897
Telephone: (847) 866-5100
NMSC website: www.nationalmerit.org

Program Recognition

Over 4,700 Black American high school students whose performance on the 2012 PSAT/NMSQT places them within the top 3 percent of program entrants will receive recognition. Their Selection Index scores (the sum of critical reading, mathematics, and writing skills scores) will be used to designate two groups of participants who will be honored by the 2014 National Achievement Program.

Students referred to colleges. Approximately 3,100 of the high-scoring program entrants will be recognized as Outstanding Participants in the 2014 National Achievement Scholarship Program. In the fall of 2013, they will be notified through their high schools that they are being referred to admission officials of regionally accredited four-year U.S. colleges and universities. Certificates in recognition of their ability and potential for academic success in college will be sent to them

through their high schools; however, these students will not continue in the competition for National Achievement Scholarships.

Semifinalists. Some 1,600 of the high scorers will be designated Semifinalists and have an opportunity to continue in the competition for National Achievement Scholarships to be offered in 2014. Their names will be sent to regionally accredited four-year U.S. colleges and universities and released to local news media for public announcement.

Semifinalists in the National Achievement Program are designated on a regional representation basis. The 50 states and the District of Columbia are grouped into several geographic regions; an allocation of Semifinalists is established for each that is proportional to the region's population of Black Americans. Semifinalists are the highest scoring program participants in the states that compose each region. Additional Semifinalists are named in schools in U.S. commonwealths and territories, in U.S. boarding schools that enroll a sizable proportion of their students from outside the state in which the school is located, and in schools in other countries that enroll U.S. citizens.

In the fall of 2013, NMSC will notify Semifinalists of their standing through their high schools. They will receive National Achievement Scholarship Application materials that explain requirements Semifinalists must meet to advance in the competition.

Finalists. Some 1,300 Semifinalists in each year's competition advance to the Finalist level and receive a Certificate of Achievement. Only Finalists are considered for National Achievement Scholarships. To qualify as a Finalist, a Semifinalist must:

1. continue to meet all requirements for participation in the National Achievement Program (including the entry requirements listed on page 4);
2. be enrolled in the last year of high school and plan 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 Achievement Scholarship Application with all information requested, which includes writing an essay;
4. have a record of consistently 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 Achievement Scholarship by a high school official;

6. take the SAT 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.

Before a Finalist can receive an award, he or she must notify the National Achievement Program 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, virtual universities, and certain institutions that are limited in their purposes or training.

Types of Awards and Selection of Winners

In the 2014 competition, approximately 800 National Achievement Scholarships worth about \$2.5 million will be offered. All Achievement Scholar® awardees will be selected from the Finalist group, based on their abilities, skills, and accomplishments. Although different types of awards will be offered, no student can receive more than one monetary award from NMSC.

National Achievement® \$2500 Scholarships. Every Finalist in the National Achievement Program will be considered for one of these single-payment awards of \$2,500. The 700 National Achievement \$2500 Scholarships will be awarded on a regional representation basis (as in the naming of Semifinalists). Winners will be notified beginning in late February 2014.

To judge which Finalists in a region have the greatest potential for success in rigorous college studies, a committee of high school counselors and college admission officers will evaluate the applications completed by all Finalists and their school officials. Winner selections will be based on Finalists' academic records, demonstrated leadership, contributions to school and community activities, test scores, essays, and school officials' recommendations.

Companies and business organizations underwrite some of the National Achievement \$2500 Scholarships offered annually, but the majority of these awards are supported by NMSC's own funds.

Corporate-sponsored Achievement Scholarship® awards.

About 100 Achievement Scholarship awards will be offered in 2014 to Finalists who have qualifications that particularly interest a corporate or business sponsor. Almost all corporate-sponsored scholarships are designated for Finalists who plan to pursue college majors or careers the grantor wishes to encourage, are children of a sponsor's employees, or residents of a company's service areas. Finalists who are considered for these scholarships are identified from information supplied on their scholarship applications, and winners are chosen from eligible Finalists. In late February 2014, NMSC will mail scholarship offers to recipients.

Most corporate-sponsored Achievement Scholarship awards are renewable and provide stipends for up to four years of undergraduate study, but some are nonrenewable awards that provide a single payment. (Values of these awards are comparable to those in the National Merit Program, described on page 7.)

Achievement Scholarship® Sponsors

Currently, 35 corporations, company foundations, and other business organizations commit approximately \$800,000 to support National Achievement Scholarships in each annual competition. A sponsor may underwrite National Achievement \$2500 Scholarships, for which all Finalists compete, or scholarships for Finalists who meet specified criteria; a few companies provide both types of awards.

Sponsors and the number of Achievement Scholarship awards they financed in 2012 are listed below. However, inclusion in a list does not commit any sponsor or NMSC to provide these Achievement Scholarship awards in 2013, 2014, or beyond.

- ADP Foundation (1)
- Ameren Corporation Charitable Trust (1)
- Bayer USA Foundation (1)
- Black Contractors United (1)
- The Boule Foundation (12)
- BP Foundation, Inc. (1)
- Cardinal Health Foundation (1)
- Chevron U.S.A. Inc. (1)
- Computer Sciences Corporation (1)

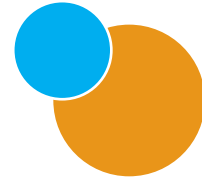
Delta Sigma Theta Sorority, Inc. (1)
Gaylord and Dorothy Donnelley Foundation (1)
R.R. Donnelley Foundation (2)
ExxonMobil (2)
Fifth Third Foundation (1)
General Mills Foundation (1)
GKN Foundation (2)
Goodrich Foundation, Inc. (1)
Harris Corporation (1)

The IKON Office Solutions Foundation (1)
The Links Foundation, Incorporated (4)
Loews Foundation (1)

Mead Witter Foundation, Inc. (5)
MetLife Foundation (1)
Motorola Solutions Foundation (3)
Navistar Foundation (1)
The NewMarket Foundation (1)
PepsiCo Foundation, Inc. (2)
PPG Industries Foundation (2)

Reynolds American Foundation (4)
Sony Electronics Inc. (3)
Textron Charitable Trust (1)
The UPS Foundation (3)
Walgreen Co. (5)
Wirtz Corporation (1)
The Xerox Foundation (11)

2012



Official Student Guide to the
PSAT/NMSQT[®]
Preliminary SAT/National Merit Scholarship Qualifying Test

Test-Taking Help

- Seven Types of Questions You'll See on the Test
- Practice Test with Answer Key (Separate Pull-Out Booklet)

www.collegeboard.org

92137-01442 • M712E4650 • Printed in U.S.A.

766107



Preliminary SAT/National Merit Scholarship Qualifying Test
cosponsored by



Flip this book over for

**Scholarship
Competitions**

conducted by

**National Merit
Scholarship Corporation**

Table of Contents

Contact information 2
My College QuickStart 3
Things to know 3

Important Information

Test scores 4
Test regulations 4
Special opportunities 4
Student Search Service 5
What to do if 5
 you cannot take the test 5
 you are home-schooled 5
 you are studying in another country 5
 you missed the test 5
Students with disabilities 5
Cancellation of scores 6
Test fairness review 6
Questioning a test question 6
College majors 7

Prepare for the Test

Critical Reading Section 8
 Critical Reading Skills Review 8
 Critical Reading Questions 9
 Sentence completions 9
 Passage-based reading 10
Mathematics Section 17
 Mathematics Content Overview 17
 Calculator use 17
 Mathematics Concept Review 18
 Mathematics Questions 22
 Multiple-choice questions 22
 Student-produced response
 questions 26
Writing Skills Section 29
 Effective writing characteristics 29
 Improving sentences 30
 Identifying sentence errors 31
 Improving paragraphs 32

Full-Length Practice Test

(separate pull-out booklet inserted in center)

If you don't have a Practice Test, ask your counselor for one.

The PSAT/NMSQT®

The Preliminary SAT/National Merit Scholarship Qualifying Test (PSAT/NMSQT) is cosponsored by the College Board and National Merit Scholarship Corporation. It is developed and administered for the 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 supervisor or the PSAT/NMSQT office immediately.

Write: PSAT/NMSQT
P.O. Box 6720
Princeton, NJ 08541-6720
Email: psat@info.collegeboard.org

Call: 609-771-7070
609-882-4118 TTY
8 a.m. to 4 p.m. ET
Fax: 610-290-8979

The College Board

The College Board is a mission-driven not-for-profit organization that connects students to college success and opportunity. Founded in 1900, the College Board was created to expand access to higher education. Today, the membership association is made up of more than 5,900 of the world's leading educational institutions and is dedicated to promoting excellence and equity in education. Each year, the 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 more information, visit www.collegeboard.org.

The publication *Guidelines on the Uses of College Board Test Scores and Related Data*, available at www.collegeboard.org/research, highlights proper and beneficial uses of test scores and cautions against uses that are inappropriate.

The College Board
45 Columbus Avenue
New York, NY 10023-6992
212-713-8000

National Merit Scholarship Corporation (NMSC)

NMSC is an independent, not-for-profit organization that operates without government assistance. NMSC conducts two annual competitions for recognition and scholarships — the National Merit® Scholarship Program and the National Achievement® Scholarship Program. The PSAT/NMSQT is the screening test for high school students who wish to participate in NMSC programs. Further information can be found in the NMSC section on the flip side of this publication or by visiting www.nationalmerit.org.

Please direct inquiries about any aspect of the National Merit Program or the National Achievement Program, including student participation requirements, the selection process and awards offered, to:

National Merit Scholarship Corporation
1560 Sherman Avenue
Suite 200
Evanston, IL 60201-4897
847-866-5100

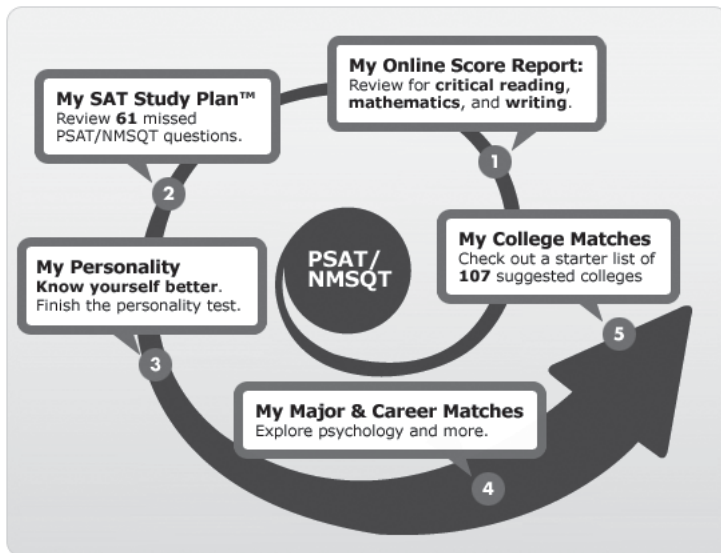
Reproduction of any portion of this *Official Student Guide* is prohibited without the written consent of the College Board.

© 2012 The College Board. All rights reserved. College Board, Advanced Placement Program, AP, Student Search Service, SAT and the acorn logo are registered trademarks of the College Board. My College QuickStart and My SAT Study Plan are trademarks owned by the College Board. PSAT/NMSQT is a registered trademark of the College Board and National Merit Scholarship Corporation (NMSC). NMSC section pages 1–23 © 2012 National Merit Scholarship Corporation. The passages for sample questions have been adapted from published material. The ideas contained in them do not necessarily represent the opinions of the College Board, National Merit Scholarship Corporation, or Educational Testing Service.

My College QuickStart™ A Free Resource for Students

My College QuickStart is an online college and career planning kit available free of charge to all students who take the PSAT/NMSQT. It is powered by your responses to the test, and provides personalized information that helps you take the next steps toward college:

- **My Online Score Report** — View your enhanced score report with test questions, your answers, and the correct answers with answer explanations.
- **My SAT Study Plan™** — Prepare for the SAT with a personalized plan based on your test performance (includes a free practice test and hundreds of practice questions).
- **My Personality** — Take a personality test to learn more about yourself and find majors and careers that fit your strengths and interests.
- **My Major & Career Matches** — Learn about different majors and careers and see what courses you should take now to be successful later.
- **My College Matches** — Get a starter list of colleges (based on your home state and indicated choice of major) to help you begin your search.



You may log in to My College QuickStart with the access code printed on your paper score report. The tool is available as soon as you receive your score report and can be utilized throughout high school.

Log in or take a tour at www.collegeboard.org/quickstart.

Things To Know about the PSAT/NMSQT

TEST DATES:

Wednesday, Oct. 17, or
Saturday, Oct. 20, 2012

What does the PSAT/NMSQT measure?

The PSAT/NMSQT measures critical reading, math and writing skills developed over many years, both in and out of school.

You will not have to recall facts from literature, history, or science, or complete math formulas, as this test measures your reasoning and critical thinking skills.

Why take the test?

- Get feedback about critical academic skills
- Prepare for the SAT
- Start getting ready for college
- Enter scholarship competitions

What is the test fee?

The fee for the 2012 PSAT/NMSQT is \$14. Schools sometimes charge an additional fee to cover administrative costs. The College Board makes fee waivers available to schools for juniors from low-income families who can't afford the test fee. Talk to your counselor for more information about fee waivers.

Whom can I contact if I have questions?

See your counselor. For further help, see contact information on page 2 for the PSAT/NMSQT office, the College Board, and National Merit Scholarship Corporation (NMSC).

What should I bring on test day?

- No. 2 pencils and eraser
- Approved calculator (see page 17)
- Social security number (optional)
- Student ID number, assigned by your school (optional)
- Email address (optional)
- Current and valid school or government issued photo ID if you are not testing at the school you normally attend

Online preparation and resources:

- Go to www.collegeboard.org/psat for sample questions and practice test answer explanations.
- Go to www.collegeboard.org/psatskills to learn about the skills tested on the PSAT/NMSQT and try practice questions for each skill.

Important Information

What scores will I receive?

In December, your school will receive your PSAT/NMSQT Score Report *Plus*, which will be given to you, along with your test book, in the following weeks. Your score report will include your critical reading, mathematics and writing skills scores; score ranges; national percentiles; and Selection Index (critical reading + mathematics + writing skills scores), which NMSC uses as an initial screen of the large number of entrants to its scholarship competitions. The score report will also show the correct answers, the answers you gave and the difficulty level of each question. If you have not received your score report by mid-January, see your counselor. The PSAT/NMSQT Program does not provide duplicate copies of score reports, but your school will have a copy.

Does anyone else receive my scores and information I provide on my answer sheet?

As cosponsors of the PSAT/NMSQT, the College Board and NMSC receive the scores of students who take the test as well as information students provide on their answer sheets. Some information is collected for very limited uses (noted on the answer sheet), and some is used for research and to produce reports about groups of students. Scores and answer sheet information are

stored indefinitely, but personally identifying information will not be disclosed without your consent.

Some school districts and states receive PSAT/NMSQT scores with other information about their students. In addition, scores for students who qualify for programs described in the next section are reported to those programs. The PSAT/NMSQT Program does not report scores to colleges or commercial entities. Any businesses that may contact you to sell their products or services did not receive student information from the College Board as a result of taking the PSAT/NMSQT.

Special Opportunities

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 Nov. 1, 2012.

**PSAT/NMSQT
P.O. Box 6720
Princeton, NJ 08541-6720**

▶ 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

Test Regulations

Standard rules and regulations give all students the same opportunity and prevent any student from having an unfair advantage. Read these test regulations carefully because you must copy and sign a Certification Statement on the test answer sheet stating that you will abide by these regulations. Also read about cancellation of scores on page 6. Failure to follow these test regulations or any instructions given by the test supervisor may result in your scores being canceled.

- ▶ You must do all scratch work in the test book and then mark your answers on the answer sheet. You will not receive credit for anything written in the test book. You may not take your test book from the room.
 - ▶ You may use an approved calculator (see page 17) only during the mathematics sections of the test; you may not have a calculator on your desk during the critical reading or writing skills sections and you may not share a calculator during the test or during breaks. If you bring more than one calculator, you must keep only one on the desk. Any other calculators must be kept under your desk.
 - ▶ You are not allowed to use: protractors; compasses; rulers; cutting devices; dictionaries or other books; pamphlets; papers of any kind; highlighters; pens or colored pencils; listening, recording, copying, or photographic devices; or any other aids. You may not bring food or drink (including bottled water) into the test room, unless preapproved for medical reasons.
 - ▶ You may not use electronic or photographic devices (such as cell phones, digital cameras, personal digital assistants (PDAs), smartphones, Bluetooth-enabled devices, MP3 players, wrist camera watches, email/messaging devices, and any other electronic or communication devices), or any devices that can access the Internet during the test or the breaks. Power must be turned off and these devices must be placed under your desk. If your watch has an alarm, you must turn that off as well. If your phone makes noise, or you are seen using it at any time (including breaks), you will be dismissed immediately, your scores will be canceled and the device may be confiscated and its contents inspected.
 - ▶ You may not give or receive assistance or disturb others during the test or breaks.
 - ▶ You may check your work on the section on which you are being tested if you finish before time is called, but you may not turn to any other section of the test.
 - ▶ You may take the PSAT/NMSQT only once each school year. If you begin a test, you are considered to have taken it.
 - ▶ All PSAT/NMSQT test-takers in your school must take the test at the same time.
- (Read about special arrangements and testing accommodations for students with disabilities on page 5.)
- ▶ If you become ill and/or must leave during the test, or if for any other reason you do not want your test scored, you may ask the test supervisor to destroy your answer sheet before you leave the testing room. After you leave the testing room, any decision to withdraw your answer sheet from scoring must be reported immediately to the test supervisor or the PSAT/NMSQT office. (See contact information on page 2.)
 - ▶ You may not discuss the contents of the test with anyone else, or share them through any means, including but not limited to, emails, text messages and the Internet until after score reports have been distributed.
 - ▶ Members of your household or immediate family may not serve as PSAT/NMSQT supervisors or proctors, even at a different school, on the date that you take the test.

one-quarter Hispanic/Latino, as defined by the NHRP, and meet a minimum PSAT/NMSQT cutoff score for your state, as well as a minimum grade point average.

**The College Board
National Hispanic Recognition Program
11955 Democracy Drive
Reston, VA 20190
877-358-6777**

▶ The National Scholarship Service (NSS) offers a free college advisory and referral service for students who plan to attend two-year or four-year colleges. Scores will be sent for juniors who indicate that they are African American or Black.

**National Scholarship Service
230 Peachtree Street, Suite 530
Atlanta, GA 30303
404-522-7260**

▶ Telluride Association offers scholarships to highly gifted juniors for summer seminars in the humanities and social sciences.

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

What information about me will the College Board's Student Search Service® share?

More than 1,100 colleges, universities, qualified scholarship organizations, and nonprofit educational opportunity organizations use the Student Search Service to connect with students. Over two-thirds of students who take the PSAT/NMSQT decide to participate in the Student Search Service. Institutions may select students within a specified range of scores, but they will not receive your individual scores. Institutions may also select students by other characteristics you provide, such as sex, ethnic background, religious preference, and self-reported GPA. The Student Search Service will send these institutions only your name, address, sex, birth date, school, graduation year, ethnic group, email address and intended college major if you provide these items. Your information will not be released to commercial entities, and Student Search Service will not share your phone number with any organization.* You must be 13 years of age or older and in ninth through twelfth grade to be included in Student Search Service. To preserve the integrity of the information contained in the Student Search Service database, the College Board reserves the right to remove, with or without notice, a particular student from the database. To participate, answer "Yes" to the question to the right on test day.

7 Student Search Service® Some colleges, universities, scholarship programs and nonprofit education organizations may request information you supply on this answer sheet (including your email address if you supply it) in order to provide you with materials about educational opportunities and financial aid. 7a. Would you like us to supply your information for these purposes? <input type="radio"/> Yes <input type="radio"/> No 7b. By providing your email address in the space below, you are granting the College Board and NMSC permission to contact you via email.

What to do if...

▶ you know in advance that you cannot take the test on the date your school offers it:

Your school may be able to arrange for you to take the test at a neighboring school that has selected the other test date. Tell your counselor as soon as possible that you have a conflict, such as not being able to test on Saturday because of a religious observance. If you test at another school, be sure to take your school's code number and some form of photo identification with you.

▶ you are home-schooled and want to take the PSAT/NMSQT:

You must make arrangements in advance with your local high school or other nearby school administering the test. (For a listing of schools in your area, go to www.collegeboard.org/psat.) If this is not possible, contact the PSAT/NMSQT office.

▶ you will be studying in another country when the test is given:

You must make advance arrangements. 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 National Merit Scholarship Corporation's scholarship competitions, see the box on page 5 of the NMSC section in the flip side of this *Student Guide*.

Students with Disabilities

The College Board provides testing accommodations for students with documented disabilities. If you have not already been approved for accommodations by the College Board, your counselor must submit a request. It is important to speak to your counselor or teacher right away to determine if a request for accommodations needs to be submitted. If so, your counselor will use the SSD Online system to request the accommodations that meet the needs of your disability.

After you have submitted an eligibility form, you will receive a decision letter. If you are approved for accommodations, save this letter because it also

*For information about test-prep product solicitations, visit www.collegeboard.org/student/testing/psat/reg/sss.html.

indicates your eligibility for accommodations on other College Board tests, such as the SAT and Advanced Placement Program (AP[®]) Exams. This eligibility will be in effect for as long as you remain in the same school and your school annually confirms your continued eligibility. If you move to a new school, ask your counselor to notify the College Board's SSD office that you have moved.

If you are interested in participating in NMSC's scholarship programs and did not receive accommodations for which you were approved or did not receive approval in time for the test, please contact NMSC immediately but no later than Nov. 15, 2012.

Cancellation of Scores

To report scores that accurately reflect performance, ETS maintains, on behalf of the College Board and NMSC, test administration and security standards designed to give all students the same opportunity to demonstrate their abilities and to prevent any student from gaining an unfair advantage because of testing irregularities or misconduct. ETS reviews irregularities and test scores believed to have been earned under unusual circumstances.

Students may be dismissed from the testing room and their answer sheets may be destroyed if they fail to follow test regulations or instructions given by the test supervisor. Once answer sheets are submitted for scoring, ETS reserves the right not to score the answer sheet of a student who engaged in misconduct or was involved in a testing irregularity.

ETS reserves the right to cancel scores if there is reason to doubt their validity. Before acting, ETS will inform the student of the reasons for questioning the scores and will give the student an opportunity to provide additional information, to confirm the scores by taking another PSAT/NMSQT, or to cancel the scores. The student may also request arbitration in accordance with ETS's Standard Arbitration Agreement. If before, during or after a review of questionable scores, ETS finds that misconduct has occurred in connection with a test, ETS may treat the matter under its Misconduct procedures. In that event, the options available in connection with Score Invalidity reviews will not be available even if those options were previously offered.

Score reviews are confidential. If it is necessary to cancel reported scores, ETS will notify score users, but the reasons for cancellation will not be disclosed. This policy does not necessarily apply in group cases.

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 its scholarship programs.

Test Fairness Review

ETS develops and reviews tests by its own published fairness and quality assurance standards to ensure that the tests do not disadvantage examinees of a particular sex, race, ethnic group or cultural background. Following these standards, ETS professional staff and external committees, whose members are drawn from all regions of the country, review all PSAT/NMSQT questions and entire tests to eliminate any wording or content that might be offensive to any examinees and to ensure that the test includes references to men and women, and to individuals from a variety of racial, ethnic, and cultural backgrounds. To further ensure fairness, ETS performs a statistical analysis, followed by professional review, which reduces the possibility that any question might be more difficult for any particular group of students than would be expected from their performance on the total test. Differences in average test performance of various groups can be attributed to many factors, such as long-term educational preparation; the test itself reflects such differences but is not the cause.

Questioning a Test Question

If you find what you consider to be an error or ambiguity in a test question, tell the test supervisor immediately after the test. You may also write to: **Assessment Development, P.O. Box 6656, Princeton, NJ 08541-6656**; or send an email to: **cbcandinq@ets.org**.

State in your inquiry 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.

ETS will send you a written response after your inquiry has been reviewed thoroughly by subject-matter specialists. (*Note: ETS will not respond via email, so be sure to include your full name and mailing address.*)

If the response does not resolve your concern, you can request that the Director of Assessment Development initiate further reviews of your inquiry.

ETS will retain your letter (with your identification deleted) along with other such letters. You can obtain copies of these letters for a nominal fee by writing to Assessment Development.

College Majors

When you take the PSAT/NMSQT, indicate the college major that best matches your interests by entering the code from the list below on your answer sheet. Your

My College QuickStart account will let you investigate this and other majors further.

If you say “Yes” to Student Search Service, colleges and universities that offer degrees in your area of interest can send you information about their programs.

College Major Codes

Agriculture, Agriculture Operations and Related Sciences - 100

Agricultural Business and Management - 101
Animal Sciences - 103

Architecture and Related Services - 120

Architecture - 121
City/Urban, Community and Regional Planning - 123
Landscape Architecture - 125

Area, Ethnic, Cultural, Gender and Group Studies - 140

Area Studies - 141
Ethnic, Cultural Minority, Gender and Group Studies - 142

Biological and Biomedical Sciences - 160

Biochemistry - 162
Biology/Biological Sciences, General - 161
Biophysics - 163
Biotechnology - 164
Cell/Cellular Biology and Anatomical Sciences - 166
Ecology - 167
Genetics - 168
Marine Biology and Biological Oceanography - 169
Microbiological Sciences and Immunology - 170
Molecular Biology - 171
Neuroscience - 185
Zoology/Animal Biology - 175

Business Management, Marketing and Related Support Services - 200

Accounting and Related Services - 201
Actuarial Science - 202
Business Administration, Management and Operations - 204
Fashion Merchandising - 208
Finance and Financial Management Services - 209
Hospitality Administration/Management - 211
Hotel, Motel and Restaurant Management - 225
Human Resources Management and Services - 212
International Business - 214
Management Information Systems and Services - 217
Marketing/Marketing Management - 218
Meeting and Event Planning - 230

Communication, Journalism and Related Programs - 250

Communication and Media Studies - 252
Digital Communication and Media/Multimedia - 253
Journalism - 254
Public Relations, Advertising and Applied Communication - 270
Radio and Television - 257

Computer and Information Sciences and Support Services - 300

Artificial Intelligence - 301
Computer Programming - 302
Computer Science - 303
Computer Systems Networking and Telecommunications - 306
Information Sciences/Studies - 308

Education - 400

Early Childhood Education and Teaching - 407
Elementary Education and Teaching - 417
Secondary Education and Teaching - 430
Special Education and Teaching - 432

Engineering - 450

Aerospace, Aeronautical and Space Engineering - 451
Agricultural Engineering - 452
Architectural Engineering - 453
Bioengineering and Biomedical Engineering - 454
Chemical Engineering - 455
Civil Engineering - 456
Computer Engineering, General - 457
Electrical and Electronics Engineering - 459
Engineering Physics/Applied Physics - 461
Engineering Science - 462
Environmental/Environmental Health Engineering - 463
Geological/Geophysical Engineering - 464
Industrial Engineering - 465
Materials Engineering - 466
Mechanical Engineering - 467
Mining and Mineral Engineering - 468
Nuclear Engineering - 470
Petroleum Engineering - 472
Polymer/Plastics Engineering - 475

Engineering Technologies - 500

Computer Engineering Technology - 501
Drafting/Design Engineering Technologies - 502
Telecommunications Technology/Technician - 509

English Language and Literature/Letters - 520

Creative Writing - 522

Family and Consumer Sciences/Human Sciences - 540

Foods, Nutrition and Wellness Studies - 542

Foreign Languages, Literatures and Linguistics - 550

Classics and Classical Languages, Literatures and Linguistics - 553
Comparative Literature - 554
East Asian Languages, Literatures and Linguistics - 555
French Language and Literature - 556
German Language and Literature - 557

Linguistics - 559
Russian Language and Literature - 560
Spanish Language and Literature - 561

Health Professions and Related Programs - 600

Allied Health Diagnostic, Intervention and Treatment Professions - 602
Athletic Training/Trainer - 603
Clinical/Medical Laboratory Science/Research and Allied Professions - 605
Communication Sciences and Disorders - 606
Dental Hygiene/Hygienist - 607
Dietetics and Clinical Nutrition Services - 610
Nursing - 619
Predentistry Studies - 627
Premedicine/Premedical Studies - 628
Preoccupational Therapy Studies - 678
Prepharmacy Studies - 629
Prephysical Therapy Studies - 682
Preveterinary Studies - 630

History - 700

Homeland Security, Law Enforcement, Firefighting and Related Protective Services - 890

Criminal Justice/Law Enforcement Administration - 892
Forensic Science and Technology - 894
Homeland Security - 897

Legal Professions and Studies - 710

Prelaw Studies - 712

Liberal Arts and Sciences, General Studies and Humanities - 720

Humanities/Humanistic Studies - 722
Liberal Arts and Sciences/Liberal Studies - 723

Mathematics and Statistics - 740

Applied Mathematics - 741
Mathematics - 742
Statistics - 743

Military Technologies and Applied Sciences - 360

Multi-/Interdisciplinary Studies - 770

Biological and Physical Sciences - 771
International/Global Studies - 772
Mathematics and Computer Science - 773

Natural Resources and Conservation - 790

Environmental Science - 791
Environmental Studies - 792
Fishing and Fisheries Sciences and Management - 793
Forestry - 794

Wildlife, Fish, Wildlands Science/Management - 796

Parks, Recreation, Leisure and Fitness Studies - 800

Parks and Recreation Facilities Management - 802
Sport and Fitness Administration/Management - 803

Personal and Culinary Services - 810

Philosophy and Religious Studies - 820

Philosophy - 821
Religion/Religious Studies - 822

Physical Sciences - 830

Astronomy - 832
Astrophysics - 833
Atmospheric Sciences and Meteorology - 834
Chemistry - 836
Geological and Earth Sciences/Geosciences - 837
Materials Science - 854
Physics - 843

Psychology - 870

Public Administration and Social Services - 880

Human Services, General - 881
Public Administration - 882
Public Policy Analysis - 883
Social Work - 884

Social Sciences - 900

Anthropology - 901
Archaeology - 902
Criminology - 903
Economics - 904
Geography - 905
International Relations and Affairs - 906
Political Science and Government - 907
Sociology - 908

Theology and Religious Vocations - 920

Visual and Performing Arts - 940

Art History, Criticism and Conservation - 941
Arts, Entertainment and Media Management - 960
Dance - 942
Drama and Theater Arts - 943
Fashion/Apparel Design - 945
Film/Video and Photographic Arts - 946
Fine and Studio Art - 947
Game and Interactive Media Design - 970
Graphic Design - 948
Interior Design - 949
Music - 950
Photography - 954
Technical Theater/Theater Design and Technology - 955

OTHER - 990

UNDECIDED - 999

Critical Reading Section

Critical Reading Skills Review

Become familiar with the following reading skills before test day. For additional test-taking tips, visit www.collegeboard.org/psat.

Building a Vocabulary

The best way to learn the meanings of words is to read widely and to look up unfamiliar words in a dictionary. When a dictionary is not available, you can try the following:

- **Determine meaning from word components.**

A **prefix** appears at the front of a word and affects the meaning of what follows. *Mal*, for example, means *bad*, so words beginning with *mal* (such as *malpractice*, *maladjusted*, *malodorous*) usually have a negative meaning. There are many common prefixes, including *ante*, *dis*, *non*, *post* and *un*.

A **suffix** appears at the end of a word and affects the meaning of what comes before. *Less*, for example, means *lacking*, so words ending in *less* (such as *clueless*, *guileless*, *worthless*) usually involve being without something. Common suffixes include *able*, *ism*, *ology* and *tion*.

A **root** is the element of a word that carries the main component of meaning. There are many common roots in the English language. *Aqua*, for example, means water and is the root in words such as *aquarium* and *aquatic*. *Chrom* means color and is the root in words such as *chromatic* and *monochrome*. When you come across an unfamiliar word, you can sometimes figure out its meaning if you recognize a root from a more familiar word.

- **Determine meaning from context.**

You can often figure out the approximate meaning of a word from its context. If, for example, you encountered the sentence “Mary was a gregarious person and therefore got to know many people,” you could probably guess that “gregarious” means sociable. But, whenever you can do so, you should confirm the meaning of unfamiliar words by checking a dictionary.

Comprehending Sentences

Sentences are composed of one or more clauses that together create meaning. The relationships between the elements of a sentence are usually controlled by the following:

- **Punctuation**

A **colon** is often used to introduce material that explains or illustrates what has come before. Example: “Last night, John displayed dreadful manners: he arrived late for dinner, criticized his host’s appearance and refused to help with the dishes.”

A **semicolon** is often used to join equal and balanced sentence elements. When it joins two independent clauses, it indicates a closer relationship between the clauses than a period does. Example: “Rodriguez’s new novel is brilliantly written; surprisingly, it has sold poorly.”

- **Introductory and transitional words and phrases**

Some words and phrases connect similar ideas: *also*, *and*, *for example*, *furthermore*, *in addition*, *in other words*, *likewise*, *moreover*.

Other words and phrases connect ideas that are dissimilar in meaning: *although*, *but*, *despite*, *except*, *however*, *in contrast*, *instead*, *nevertheless*, *nor*, *not*, *on the other hand*, *yet*.

Some words and phrases connect ideas in cause-and-effect relationships: *as a result*, *because*, *consequently*, *hence*, *in order to*, *therefore*, *thus*.

Other words indicate that a certain condition must be considered: *if*, *when*.

Reading Effectively

A good reader is an active reader, one who moves beyond what is literally stated and draws inferences about what he or she reads. To be an active reader, you should be able to do the following:

- **Understand the primary purpose or main idea of a piece.**

Is the author seeking to entertain, to inform, or to convince? Try to distinguish between the main idea and supporting ideas.

■ **Understand the tone or attitude conveyed by certain words and expressions.**

Do you sense that the author is critical or enthusiastic? Earnest or humorous? Pay close attention to the connotations of key words and what they may say about the author’s attitude. Become familiar with terms that characterize tones — words like *caustic*, *didactic*, *irreverent*, *pensive* and *satirical*.

■ **Understand the use of rhetorical strategies.**

Note the techniques by which writers achieve their effects. Does the author use examples, figurative language, imagery, irony, overstatement, quotations, rhetorical questions or word repetition? Ask yourself why the author chose to express things a certain way.

■ **Recognize implications and make evaluations.**

When you infer, you go beyond what is literally stated; you piece together what is implied by certain words, phrases, and statements. This may involve recognizing underlying assumptions, understanding how different ideas relate to one another or evaluating the limits of an argument.

Critical Reading Questions

The critical reading section of the PSAT/NMSQT contains two types of questions:

- Sentence Completion** (13 questions)
- Passage-Based Reading** (35 questions)

Approaches to the Critical Reading Section

- Work on sentence completion questions first. They take less time to answer than the passage-based reading questions.
- The difficulty of sentence completion questions increases as you move through a question set.
- Reading questions do not increase in difficulty. Instead, they follow the logic of the passage.
- The information you need to answer each reading question is in the passage(s). Reading carefully is the key to finding the correct answer. Don’t be misled by an answer that looks correct but is not supported by the actual text of the passage(s).
- Do not jump from passage to passage. Stay with a passage until you have answered as many questions as you can. When you have gone through all the questions associated with a passage, go back and review any you left out or were not sure about.
- In your test book, mark each question you don’t understand so that you can easily go back to it later if you have time.

Sentence Completions

Sentence completion questions measure your knowledge of the meanings of words and your ability to understand how the different parts of a sentence fit together logically. The sentences, usually adapted from published material, cover a wide variety of topics of the sort you are likely to have encountered in school or in your general reading. Your understanding of sentences will not depend on specialized knowledge of science, literature, social studies or any other field.

Below are the **directions** you will see on the test.

Each sentence below has one or two blanks, each blank indicating that something has been omitted. Beneath the sentence are five words or sets of words labeled A through E. Choose the word or set of words that, when inserted in the sentence, best fits the meaning of the sentence as a whole.

Example:

Hoping to ----- the dispute, negotiators proposed a compromise that they felt would be ----- to both labor and management.

- (A) enforce . . useful
- (B) end . . divisive
- (C) overcome . . unattractive
- (D) extend . . satisfactory
- (E) resolve . . acceptable

(A) (B) (C) (D) ●

To answer a sentence completion question, you have to understand how the parts of the sentence relate to one another. In the preceding example, the introductory clause (before the comma) indicates what the negotiators are hoping to do.

- Which of the first terms makes sense when inserted in the first blank? If the negotiators are proposing a “compromise,” then they are probably seeking to **end**, **overcome** or **resolve** the dispute. Choices (B), (C), and (E) all seem reasonable so far.
- What about the second blank? If the negotiators are seeking to **end**, **overcome** or **resolve** the dispute, then it’s likely that they would propose a compromise suitable to both labor and management. The second terms in choices (A), (D) and (E) could all help to make this point.
- So which is the best answer? Choice (E), because both words in this choice work together to complete the logic of the sentence: “Hoping to **resolve** the dispute, negotiators proposed a compromise that they felt would be **acceptable** to both labor and management.”

Tip: Try answering two-blank questions one blank at a time. If you can eliminate one word in an answer, the entire choice can be eliminated.

1. Before Karen Chin’s research, scientists assumed that the value of evidence preserved in the fossils called coprolites was too ----- to warrant the effort of -----.

- (A) unpredictable . . transformation
- (B) superlative . . examination
- (C) conventional . . eradication
- (D) relevant . . synthesis
- (E) dubious . . analysis

The sentence indicates what scientists had thought about the value of evidence preserved in coprolites before Karen Chin’s research: they had assumed that it “was too ----- to warrant the effort of -----.” The word that best completes the first blank will characterize the scientists’ view of the evidence, and the word that best completes the second blank will indicate what the scientists therefore thought was not worth the effort of doing. Choice (E) is the correct response. If the scientists thought the value of the evidence preserved in coprolites was **dubious**, or doubtful, then they probably would not think it worth the effort of **analysis**.

- Choice (A) is incorrect. While **unpredictable** may make some sense in the first blank, **transformation** does not make sense in the second. One would not expect scientists to make an effort to transform, or change, the evidence.
- Choice (B) is incorrect. If scientists thought the value of the evidence preserved in coprolites was **superlative**, or of very high quality, then it probably *would* “warrant the effort of **examination**.”
- Choice (C) is incorrect. For one thing, scientists would not be expected to attempt the **eradication**, or the complete elimination, of evidence. And it would be especially unlikely for scientists to feel that some evidence was “too **conventional**,” or too customary, to “warrant the effort” of such eradication.
- Choice (D) is incorrect because it would be illogical to speak of evidence as being “too **relevant**” to be worth the effort of **synthesis**.

2. Greta praised the novel for its -----, claiming it depicted reality so vividly that it seemed more like fact than fiction.

- (A) transcendence (B) romanticism
- (C) impenetrability (D) loquacity
- (E) verisimilitude

The material in the second part of this sentence helps define the word that best completes the blank.

Verisimilitude, choice (E), is the quality of appearing to be true or real. If Greta claims that the novel depicts reality “so vividly” that it seems “more like fact than fiction,” then she would be praising the novel for its **verisimilitude**. While the words in the other options are sometimes used to describe novels, none of them makes sense when inserted in this particular sentence.

- Choice (A), **transcendence**, would suggest that the novel rises beyond the scope of ordinary experience, but nothing in the sentence indicates that it does this.
- Choice (B), **romanticism**, would suggest that the novel focuses on the heroic or the adventurous. But Greta praises the novel for its realism, not for its romantic qualities.
- Choice (C), **impenetrability**, would suggest that the novel is difficult or impossible to understand. If the novel were impenetrable, Greta would be unlikely to praise it.
- Choice (D), **loquacity**, would suggest that the novel is full of excessive talk, but nothing in the sentence indicates this.

Tip: Do not choose a word because it sounds good in one part of the sentence. Pick the answer choice that best completes the logic of the entire sentence.

Passage-Based Reading

Many questions in the critical reading section of the PSAT/NMSQT will measure your ability to read, understand and interpret reading passages. These passages are drawn from a variety of fields, including the humanities, social studies and natural sciences. Passages may also be taken from works of fiction. The selections will vary in style and may include narrative, argumentative and expository elements. Passages are usually drawn from actual published works, though this material is often adapted for testing purposes.

Passages will range in length from about 100 to 850 words and will often include an introduction and/or footnotes. Some questions will be based on a pair of passages on a shared theme or issue.

The **directions** you will see on the test are at the top of the next page.

The passages below are followed by questions based on their content; questions following a pair of related passages may also be based on the relationship between the paired passages. Answer the questions on the basis of what is stated or implied in the passages and in any introductory material that may be provided.

Question 3 is based on the following passage.

It may look as though I do not know how to begin my tale. Funny sight, the elderly gentleman who comes lumbering by in a valiant dash for the bus, which he
Line eventually overtakes but is afraid to board in motion and
(5) so, with a sheepish smile, drops back, still going at a trot. Is it that I dare not make the leap? It roars, gathers speed, will presently vanish irrevocably around the corner, the bus, the motorbus, the mighty motorbus that is my tale. Rather bulky imagery, this. I am still running.

3. In context, the actions of the “elderly gentleman” (line 2) are best understood as
- (A) a sign that the narrator fears he will miss an appointment
 - (B) a reference to the narrator’s physical skills
 - (C) a symbol of the narrator’s social status
 - (D) a metaphor for the narrator’s literary struggles
 - (E) an allusion to the narrator’s artistic reputation

To answer this question successfully, you must make the connection between the “elderly gentleman” trying to catch the bus and the narrator trying to begin his story. In the first sentence, the narrator says he does not know “how to begin” his tale, and in the next sentence, he describes an elderly gentleman who is “afraid to board” a moving bus. The narrator then asks, “Is it that I dare not make the leap?” This question invites the reader to see the similarity between the gentleman’s fear of boarding the bus in motion and the narrator’s difficulty beginning his story. The subsequent sentence, in which the narrator refers to “the mighty motorbus that is my tale,” makes the metaphor explicit. The actions of the gentleman are therefore best understood as “a metaphor for the narrator’s literary struggles,” making choice (D) the best response.

- Choice (A) is incorrect because there is no suggestion in the passage that the narrator is trying to make “an appointment.”
- Choice (B) is incorrect because the passage makes no reference to the narrator’s “physical skills.” Rather, it represents his literary difficulties.
- Choice (C) is incorrect because the narrator’s “social status” is not at issue in the passage.
- Choice (E) is incorrect because it is not clear whether the narrator even has an “artistic reputation.” At the end of the passage, he is “still running,” still trying to begin his tale.

Questions 4–5 are based on the following passages.

Passage 1

I believe that all forms of popular culture—rock and rap music, sci-fi and horror films, cartoons and comic strips, etc.—should be banned from college courses in
Line the arts and the humanities. Typically today students
(5) arrive on college campuses already besotted with the trash of popular culture, and it must now be one of the goals of a sound liberal education to wean them away from it—or, if that is asking too much (I don’t think it is, but if that really is too much), then at least to educate them to perceive what the differences are between high culture and
(10) the trash that impinges on so much of their leisure time.

Passage 2

Although there are legions of crabs, cranks, and curmudgeons who proclaim that all popular culture is worthless garbage and/or responsible for crime, short attention
(15) spans, and disrespect for elders, nobody who knows anything about popular culture has so simple a relationship to the stuff. Nobody says, “I just love all movies,” or “I like pretty much every song I hear.” On the contrary, developing the faculty of discrimination is part of the fun of
(20) immersing oneself in the popular—which means, interestingly, that few fans of popular culture are wholly “immersed” in it. To be a really knowledgeable fan, in other words, you usually have to be a keen critic. It is the people who cannot stand pop culture who are truly
(25) indiscriminate.

4. Which best describes the respective attitudes of the author of Passage 1 and the author of Passage 2 toward popular culture?
- (A) Scathing *versus* regretful
 - (B) Dismissive *versus* receptive
 - (C) Impartial *versus* appreciative
 - (D) Arrogant *versus* ambivalent
 - (E) Judgmental *versus* uninterested

This type of question asks you to understand the overall attitude expressed in each passage toward a topic or issue—in this case, popular culture. You’ll note that the author of Passage 1 twice refers to popular culture as “trash” and argues that it should be banned from college courses. Such an attitude can best be described as “dismissive.” The author of Passage 2, on the other hand, says that immersing oneself in popular culture can help one develop the “faculty of discrimination,” that

becoming a knowledgeable fan involves becoming a “keen critic.” This author can be described as “receptive” to popular culture, or open to the idea that things can be learned from it. Choice (B) is therefore the best response. Remember that *both* parts of a choice must be accurate for it to be considered the correct answer.

- With choice (A), the author of Passage 1 is indeed “scathing,” but the author of Passage 2 is not “regretful.”
- With choice (C), the author of Passage 2 is “appreciative,” but the author of Passage 1 is not at all “impartial.”
- With choice (D), some might consider the author of Passage 1 to be “arrogant,” but the author of Passage 2 is not “ambivalent.”
- With choice (E), the author of Passage 1 might be considered “judgmental,” but the author of Passage 2 is certainly not “uninterested.”

Tip: When answering questions about a pair of passages, be sure to distinguish what one author says from what the other one says.

5. The author of Passage 2 would most likely argue that the characterization of the “students” in Passage 1 is too
- (A) forgiving, because consumers should be held more accountable for their tastes
 - (B) argumentative, because many students now regard popular culture as *passé*
 - (C) simplistic, because it fails to acknowledge that some students are in fact unfamiliar with popular culture
 - (D) sweeping, because many consumers of popular culture are actually quite discerning in their judgments
 - (E) harsh, because these students have yet to begin their education

In lines 5–6, the author of Passage 1 claims that students today are “besotted with the trash of popular culture,” suggesting that they are infatuated with it or stupefied by it. In lines 18–25, the author of Passage 2 takes a more charitable view, arguing that many fans of popular culture are in fact quite “knowledgeable” and that they have developed their “faculty of discrimination.” Since the author of Passage 2 believes that many consumers of popular culture are quite discerning, this author would likely view the characterization of the “besotted” students in Passage 1 as too “sweeping,” because it fails to make appropriate distinctions. Choice (D) is therefore the best answer.

- Choice (A) is incorrect because the characterization in Passage 1 cannot be called “forgiving.”
- Choice (B) is incorrect. While the author of Passage 1 may indeed be “argumentative,” nothing in Passage 2 suggests that students regard popular culture as “*passé*.”
- Choice (C) is incorrect because Passage 2 doesn’t suggest that some students are “unfamiliar with popular culture.”
- Choice (E) is incorrect. The author of Passage 2 might find the characterization of the students in Passage 1 too “harsh,” but not because they have not yet begun their education.

Questions 6–8 are based on the following passage.

This passage is adapted from a 1987 essay by a physicist who was inspired by watching a snowstorm.

On New Year’s Day in 1611, the astronomer Johannes Kepler presented his patron John Wacker, Counsellor to the Imperial Court, a little book entitled *The Six-Cornered Snowflake*. It was also the first recorded step toward a
(5) mathematical theory of natural form.

Why, asks Kepler in his little treatise, do snowflakes fall as six-cornered starlets, “tufted like feathers”? There must be a cause, he asserts, for if it happens by chance, then why don’t snowflakes fall with five corners or with seven?
(10) Casting about for an answer, Kepler considers other hexagons in nature: the shape of the cell in a honeycomb, for example. He shows that a hexagonal architecture for the honeycomb exactly suits the bee’s purpose, for (as Kepler proves) the hexagon is the geometrical figure that
(15) enables the bee to enclose a maximum volume of honey with a minimum of wax. Next Kepler considers the seeds of the pomegranate, which are also hexagonal in form. He demonstrates that this is the shape any round, pliable object will take if a mass of such objects is squeezed equally
(20) from every side into a minimal volume, as the seeds of the pomegranate are squeezed together in the growing fruit. Then Kepler reviews other possible “causes” for the snowflake’s six-sided elegance: formal causes, efficient causes. He considers the role of beauty, function, and
(25) necessity. Perhaps, Kepler muses somewhat whimsically, snowflakes take care “not to fall in an ugly or immodest fashion.” Or maybe, he concludes, in making snowflakes, nature simply “plays.”

By inverting my pocket binoculars, I can magnify the
(30) snowflakes on my sleeve. It is easy to see why Kepler could imagine that nature “plays.” The snowflakes are like the patterns in a child’s kaleidoscope. But Kepler knew that “play” cannot be the entire story. At the end of his little book, Kepler confesses his ignorance and
(35) leaves the problem of the snowflake’s symmetry to future generations of natural philosophers.

The riddle of the snowflake has since been partly solved. Physicists have traced the snowflake's six-sided secret down into the heart of matter, to the form of
(40) the water molecule, and, ultimately, to the laws of atomic bonding that give the water molecule its shape. Kepler would be pleased to know that the beauty of the snowflake is founded upon principles of mathematical order. But he would have been surprised to learn that
(45) atoms play a role in the explanation. Kepler rejected atomism because he assumed that a rattling, clattering chaos of atoms could never give rise to the elegant symmetries of nature. But if twentieth-century physics has taught us anything, it is that nature accommodates
(50) beautiful form even at the level of the atom. Beauty in nature is not something that shows up only at a certain level of complexity. Beauty is built into every jot and tittle of creation—into every atomic brick! Beauty soaks reality as water fills a rag.

6. The first paragraph (lines 1–5) primarily functions to

- (A) formulate a generalization
- (B) define a problem
- (C) underscore a scientist's notoriety
- (D) provide a historical context
- (E) question a prevalent hypothesis

To answer this question correctly, you must recognize how the first paragraph functions in the passage. Since this paragraph offers background information on Kepler's book, indicating when and for whom it was written and hinting at its mathematical and scientific importance, it can be said to "provide a historical context." Choice (D) is therefore the best answer.

- Choice (A) is incorrect because the first paragraph cannot be said to "formulate a generalization." Rather, it gives detailed information about a specific historical occurrence.
- Choice (B) is incorrect because no "problem" is defined in the first paragraph.
- Choice (C) is incorrect. The first paragraph does not directly discuss Kepler's fame, so it cannot be said to "underscore a scientist's notoriety."
- Choice (E) is incorrect because no "hypothesis" is questioned in the first paragraph.

7. In lines 28 and 31, "plays" most nearly means

- (A) competes
- (B) mimics
- (C) pretends
- (D) wagers
- (E) frolics

Read the sentences in which the quoted word appears and try to determine how that word is being used in context. Then pick the answer choice that comes closest to this meaning. To "frolic" is to amuse oneself, to play in a light-spirited fashion. Kepler suggests that in making snowflakes, nature may just be frolicking. Choice (E), "frolics," is the correct answer.

- Choice (A), "competes," is a possible meaning of "plays," but one that makes little sense in this context. It is hard to see how nature could "compete" by making snowflakes.
- Choice (B), "mimics," is incorrect because Kepler is not suggesting that nature is imitating anything when making snowflakes.
- Choice (C), "pretends," is a possible meaning of "plays," but one that makes no sense in this context.
- Choice (D), "wagers," is a meaning of "plays," but one that makes no sense in this context.

Tip: For this type of question, do not just pick a synonym for the quoted word. Pick the answer choice with the meaning that is closest to the way the quoted word is used in the passage.

8. The comparison in lines 53–54 ("Beauty . . . rag") primarily serves to

- (A) inject a mocking tone
- (B) introduce a controversial theory
- (C) reinforce a previous assertion
- (D) correct a factual inaccuracy
- (E) acknowledge a noteworthy discovery

In lines 53–54, the author states that "Beauty soaks reality as water fills a rag"; that is, beauty thoroughly saturates the natural world. In the previous sentences, the author makes much the same point: "Beauty in nature is not something that shows up only at a certain level of complexity. Beauty is built into . . . every atomic brick!" So the comparison in lines 53–54 functions to "reinforce a previous assertion," making choice (C) the best response.

- Choice (A) is incorrect because the author is not mocking anything in making this comparison.
- Choice (B) is incorrect because the author never suggests that it is “controversial” to claim that beauty is to be found at every level of nature.
- Choice (D) is incorrect because it is never stated as a “fact” that beauty is not found at all levels of nature. The author is therefore not correcting “a factual inaccuracy.”
- Choice (E) is incorrect because the comparison in lines 53–54 does not “acknowledge” a particular discovery. Rather, it reiterates a general and widely accepted assertion about the natural world.

Questions 9–12 are based on the following passages.

Prehistoric burial mounds and other megalithic (large stone) monuments dot the countryside in Europe and in the British Isles, many in isolated and unprotected places. The first passage below is adapted from a history of the popular fascination with megalithic sites. The second passage is from a book about the most famous of these monuments, Stonehenge, which stands in southwest England.

Passage 1

There is little evidence that most nineteenth-century amateur archaeologists ever did any work. In most illustrations and paintings of the era, they are depicted in attitudes of elegant supervision, while sturdy workers, eager for the sight of buried treasure, shoveled away ancient burial mounds and stone monuments. Some antiquarians were motivated by desire for loot, others by the spirit of scientific inquiry, or by the two combined; but whatever the motive, the results were the same. Even if a megalithic site were not entirely destroyed or removed in the course of archaeological investigation, once it had been disturbed and was exposed to the elements it gradually disintegrated. As a result, many important monuments have totally disappeared since their excavation. In addition, the loss of prehistoric artifacts during or following their disinterment occurred on a large scale. Some remnants were preserved in museums and still exist, but those that passed into private collections were commonly dispersed with no record of their histories.

The technique of totally stripping sites under investigation was used by one amateur archaeologist, Colonel Hawley, in his excavations of Stonehenge in the 1920s. The site was dug up like a potato field. Much of it was stripped to the bedrock, and its potential for yielding information to future investigators was destroyed forever.

Passage 2

My earliest memory of Stonehenge is, like so many childhood memories, as much fiction as fact. I see a youngster standing at a country roadside. Larks sing and fly about. There across the plain the great stones rise and I run towards them, ahead of my parents—not at all, I’m afraid, as a budding scholar or an embryo poet. But at least I recognize a good natural exploring place when I see one. Climbing, scrambling, squeezing through stone pillars.

One part of my memory must be very wrong, because people have not been allowed to walk up to the monument as they like since well before my birth; and even in the 1930s, I am pretty sure that, though one was then free to wander in the central circle of stones, eight-year-old mountaineers were not encouraged. Of one thing I am certain: my own first meeting was happy. Above all, Stonehenge’s marvelous openness was what pleased me.

My latest remembrance, on a recent clear but arctic November day, is sadly different. Stonehenge stands in the fork of two busy roads, and the dominant sound in its present landscape is not the lark song of my memory, but the rather less poetic territorial whine of the long-distance truck. Visitors get to it now from a parking lot, past a sunken “sales complex,” then down a tunnel under the nearest road: all this designed not to spoil the view, but the effect is unhappily reminiscent of an underground bunker. When visitors finally rise inside the wired-off enclosure, they are promptly faced with another barrier. The public is now forbidden to enter the central area.

Conservation is a fine thing; yet one feels in some way cheated of a birthright. Everyone I had spoken to before coming had warned me that the new preserved-for-posterity Stonehenge makes a depressing visit.

I went up to an attendant in a little wind-shelter and explained I was writing a book about Stonehenge and would like to walk inside the barrier.

“Are you an archaeologist?”

“No, just a writer.”

“Department of the Environment, London. By letter.”

Then he added, “And I can tell you you’ll be wasting your time.”

He looked bleakly over my shoulder at the mute clump of stones, as a prison warden might who has successfully foiled yet another clumsy escape attempt. I didn’t really blame him, for it was bitterly cold; and after all, who cares for mere curiosity and affection any more?

9. The author of Passage 1 refers to Colonel Hawley (lines 20–25) to
- (A) draw a parallel between an archaeological expedition and a military campaign
 - (B) reveal the extent of tourist interest in megalithic sites
 - (C) provide an example of an excavation that damaged a megalithic site
 - (D) show that some amateur archaeologists were motivated by a desire for knowledge
 - (E) suggest a relationship between scientific inquiry and pecuniary gain

Carefully read the passage and the lines in question. The first paragraph focuses on the damage that amateur archaeologists did to megalithic sites. Lines 20–25 then refer to archaeologist Colonel Hawley, who is said to have dug up a site like a “potato field.” As a result, its “potential for yielding information” was “destroyed forever.” What point is the author making with this reference to Colonel Hawley? Choice (C) is the best answer because it correctly describes the purpose of the reference, which is to provide a specific illustration of “an excavation that damaged a megalithic site.”

- Choice (A) is incorrect. Although these lines involve a colonel, the author is not drawing a parallel with a “military campaign.”
- Choice (B) is incorrect because Colonel Hawley can’t be considered a “tourist” in the ordinary sense of the word. Moreover, Passage 1 does not discuss “tourist interest in megalithic sites.”
- Choice (D) may be appealing because some amateur archaeologists probably did have a “desire for knowledge.” But the author doesn’t discuss Hawley’s motivations, so choice (D) is not the best answer.
- Choice (E) is incorrect because these lines do not reveal whether or not Hawley realized any “pecuniary,” or monetary, gain.

10. Passage 2 as a whole can best be described as
- (A) an account of contemporary efforts to protect Stonehenge
 - (B) a contrast between idealistic expectations and nostalgic reminiscences
 - (C) a comparison of youthful impressions of Stonehenge and present-day conditions
 - (D) a celebration of a favorite family memory
 - (E) a discussion of reforms needed to preserve monuments like Stonehenge

The phrase “as a whole” indicates that you should look for the answer choice that provides the best overall description of the passage. The first two paragraphs in Passage 2 describe the author’s “earliest memory” of Stonehenge, which can be characterized as “youthful impressions.” The remainder of the passage describes the author’s “latest remembrance” from a recent visit. This portion of the text can be said to describe “present-day conditions.” Choice (C) describes Passage 2 “as a whole” and is therefore the best answer.

- Choice (A) may seem appealing since this passage does describe “contemporary efforts to protect Stonehenge.” But this choice does not take into account the first part of the passage in which the author recounts childhood experiences at Stonehenge, so this is not the best response.
- Choice (B) is incorrect. While the first part of the passage does include some “nostalgic reminiscences,” the author did not have “idealistic expectations” about returning to Stonehenge. Indeed, the author was “warned” that the new Stonehenge made for “a depressing visit.”
- Choice (D) is incorrect. The first part of the passage may describe a “favorite family memory,” but this answer choice doesn’t take into account the author’s purpose in the second part of the passage.
- Choice (E) is incorrect because the author doesn’t discuss “reforms needed to preserve monuments like Stonehenge.”

Tip: If two answer choices seem appealing, review both of them carefully and pick the better of the two.

- 11.** The author of Passage 1 would most likely view the conditions described in lines 51–52 in Passage 2 as a sign of
- (A) unfortunate governmental initiatives that threaten tourism in England
 - (B) an increased awareness of the fragility of megalithic sites
 - (C) the inadequate efforts of amateur archaeologists to protect Stonehenge
 - (D) a willingness to allow those who are not archaeologists to visit excavation sites
 - (E) overdue scientific discoveries about the origin of Stonehenge

In Passage 2, lines 51–52 describe how a series of barriers prevent visitors from entering Stonehenge, a megalithic site. This question asks how the author of Passage 1 would view such conditions. Since Passage 1 reveals that many megalithic sites were damaged or “destroyed forever” by amateur archaeologists, it is likely that this author would see the modern effort to protect Stonehenge as proof that people have become more aware of the “fragility of megalithic sites.” Choice (B), therefore, is the correct answer.

- Choice (A) is incorrect. It is unlikely that the author of Passage 1 would regard these conditions as “unfortunate governmental initiatives,” since they serve to protect the site.
- Choice (C) is incorrect because nothing suggests that the author of Passage 1 would regard these efforts as “inadequate” or as the work of “amateur archaeologists.”
- Choice (D) is incorrect because this author does not discuss whether people “who are not archaeologists” should be allowed to visit sites.
- Choice (E) is incorrect because the conditions in lines 51–52 do not involve “overdue scientific discoveries about the origin of Stonehenge.”

- 12.** Which statement best describes an important difference between the two passages?
- (A) The first discusses the changing role of amateurs in the archaeological profession; the second describes a controversy between professional and non-professional archaeologists.
 - (B) The first describes the destruction of megalithic sites; the second shows what can be learned from a damaged site.
 - (C) The first describes how contemporary archaeologists have worked to preserve megalithic sites; the second describes a personal encounter with a single monument.
 - (D) The first supports the preservation of megalithic sites; the second questions the value of complete protection.
 - (E) The first offers a scientific perspective on megalithic monuments; the second discusses their financial value as artistic artifacts.

This question requires that you understand the primary arguments of both passages and the essential difference between them. The author of Passage 1 focuses on the damage done to megalithic sites and implicitly supports the idea that such sites should be preserved. The author of Passage 2 describes a childhood experience at Stonehenge and compares it with a more recent visit; lines 54–57 specifically suggest that recent conservation efforts, while a good thing, may have been taken too far. Choice (D), which accurately characterizes these different attitudes toward preservation, is therefore the best response.

- Choice (B) may be appealing because Passage 1 does describe the destruction of megalithic sites, but it is incorrect because Passage 2 doesn’t show “what can be learned from a damaged site.”
- Choice (C) may be appealing because Passage 2 does describe a “personal encounter with a single monument,” but it is incorrect because Passage 1 doesn’t talk about “contemporary archaeologists.”
- Choices (A) and (E) are incorrect because they inaccurately characterize both of the passages.

Tip: For questions that focus on a similarity or difference between two related passages, make sure that your answer choice is true for **both** passages.

Mathematics Section

Mathematics Content Overview

The following math concepts are covered on the PSAT/NMSQT.

Number and Operations (20–25%)

- Arithmetic word problems (including percent, ratio and proportion)
- Properties of integers (even, odd, prime numbers, divisibility, etc.)
- Rational numbers
- Sets (union, intersection, elements)
- Counting techniques
- Sequences and series
- Elementary number theory

Algebra and Functions (35–40%)

- Substitution and simplifying algebraic expressions
- Properties of exponents
- Algebraic word problems
- Solutions of linear equations and inequalities
- Systems of equations and inequalities
- Quadratic equations

- Rational and radical equations
- Equations of lines
- Absolute value
- Direct and inverse variation
- Concepts of algebraic functions
- Newly defined symbols based on commonly used operations

Geometry and Measurement (25–30%)

- Area and perimeter of a polygon
- Area and circumference of a circle
- Volume of a box, cube and cylinder
- Pythagorean Theorem and special properties of isosceles, equilateral and right triangles
- Properties of parallel and perpendicular lines
- Coordinate geometry
- Geometric visualization
- Slope
- Similarity
- Transformations

Data Analysis, Statistics and Probability (10–15%)

- Data interpretation (tables and graphs)
- Statistics (mean, median and mode)
- Probability

Calculator Use

- ▶ You are strongly encouraged to bring a calculator with you when you take the PSAT/NMSQT, even if you don't think you will use it. Schools are not required to provide calculators.
- ▶ A scientific or graphing calculator is recommended. Although not recommended, any four-function calculator is permitted.
- ▶ Bring a calculator you are comfortable using. Don't buy a sophisticated or new calculator just to take the PSAT/NMSQT.
- ▶ Don't try to use your calculator on every question. No question will require the use of a calculator. However, studies indicate that students who use calculators do slightly better than students who do not.
- ▶ Decide how to solve each problem; then decide whether to use a calculator.
- ▶ Take the practice test in this booklet with a calculator at hand. This will give you an idea of how much you are likely to use a calculator on the day of the test.
- ▶ Only one calculator can be on the desk; any additional calculators must be kept under your desk.
- ▶ You will not be permitted to use a pocket organizer; laptop or handheld electronic device; cell phone calculator; or calculator with QWERTY (typewriter-like) keypad, with paper tape, that makes noise or "talks," or that requires an electrical outlet.
- ▶ If you use a calculator with a large (characters 1 inch or more high) or a raised display that might be visible to other test-takers, you will be seated at the discretion of the test supervisor.
- ▶ You will not be allowed to share a calculator with other students during the test or during breaks.
- ▶ Make sure your calculator is in good working order and that batteries are fresh. If your calculator fails during testing and you have no backup, you'll have to complete the test without it.

Mathematics Concept Review

Become familiar with the following math concepts before test day. For additional test-taking tips, visit www.collegeboard.org/psat.

Number and Operations

- **Integers:** $\dots, -4, -3, -2, -1, 0, 1, 2, 3, 4, \dots$
(Note: zero is neither positive nor negative.)
- **Consecutive Integers:** Integers that follow in sequence; for example, 22, 23, 24, 25. Consecutive integers can be more generally represented by $n, n+1, n+2, n+3, \dots$
- **Odd Integers:** $\dots, -7, -5, -3, -1, 1, 3, 5, 7, \dots$
 $2k+1, \dots$ where k is an integer
- **Even Integers:** $\dots, -6, -4, -2, 0, 2, 4, 6, \dots, 2k, \dots$
where k is an integer (Note: zero is an even integer.)
- **Prime Numbers:** 2, 3, 5, 7, 11, 13, 17, 19, \dots
(Note: 1 is not a prime and 2 is the only even prime.)
- **Digits:** 0, 1, 2, 3, 4, 5, 6, 7, 8, 9
(Note: the units digit and the ones digit refer to the same digit in a number. For example, in the number 125, the 5 is called the units digit or the ones digit.)

Percent

Percent means hundredths or number out of 100. For example, 40 percent means $\frac{40}{100}$ or 0.40 or $\frac{2}{5}$.

Problem 1: If the sales tax on a \$30.00 item is \$1.80, what is the sales tax rate?

$$\$1.80 = \frac{n}{100} \times \$30.00$$

Solution:

$$n = 6, \text{ so } 6\% \text{ is the sales tax rate.}$$

Algebra and Functions

Factoring

You may need to apply these types of factoring:

$$x^2 + 2x = x(x+2)$$

$$x^2 - 1 = (x+1)(x-1)$$

$$x^2 + 2x + 1 = (x+1)(x+1) = (x+1)^2$$

$$2x^2 + 5x - 3 = (2x-1)(x+3)$$

Functions

A function is a relation in which each element of the domain is paired with *exactly* one element of the range. On the PSAT/NMSQT and the SAT, unless otherwise specified, the domain of any function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number. For example, if $f(x) = \sqrt{x+2}$, the domain of f is all real numbers greater than or equal to -2 . For this function, 14 is paired with 4, since $f(14) = \sqrt{14+2} = \sqrt{16} = 4$.

Note: the $\sqrt{\quad}$ symbol represents the positive, or principal, square root. For example $\sqrt{16} = 4$, not ± 4 .

Exponents

You should be familiar with the following rules for exponents.

For all values of a, b, x, y :

$$x^a \cdot x^b = x^{a+b} \quad (x^a)^b = x^{a \cdot b} \quad (xy)^a = x^a \cdot y^a$$

For all values of $a, b, x > 0, y > 0$:

$$\frac{x^a}{x^b} = x^{a-b} \quad \left(\frac{x}{y}\right)^a = \frac{x^a}{y^a} \quad x^{-a} = \frac{1}{x^a}$$

Also, $x^{\frac{a}{b}} = \sqrt[b]{x^a}$. For example: $x^{\frac{2}{3}} = \sqrt[3]{x^2}$.

Note: For any nonzero number x , it is true that $x^0 = 1$.

Variation

Direct Variation: The variable y is directly proportional to the variable x if there exists a nonzero constant k such that $y = kx$.

Inverse Variation: The variable y is inversely proportional to the variable x if there exists a nonzero constant k such that $y = \frac{k}{x}$ or $xy = k$.

Absolute Value

The absolute value of x is defined as the distance from x to zero on the number line. The absolute value of x is written as $|x|$. For all real numbers x :

$$|x| = \begin{cases} x, & \text{if } x \geq 0 \\ -x, & \text{if } x < 0 \end{cases}$$

For example:

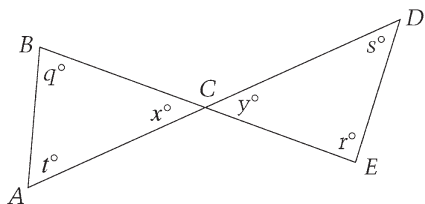
$$\begin{cases} |2| = 2 & \text{since } 2 > 0 \\ |-2| = 2 & \text{since } -2 < 0 \\ |0| = 0 \end{cases}$$

Geometry and Measurement

Figures that accompany problems are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a particular problem that the figure is not drawn to scale. In general, even when figures are not drawn to scale, the relative positions of points and angles may be assumed to be in the order shown. Also, line segments that extend through points and appear to lie on the same line may be assumed to be on the same line. A point that appears to lie on a line or curve may be assumed to lie on the line or curve.

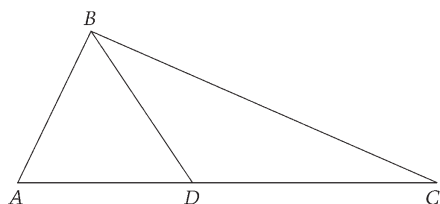
The text “**Note:** Figure not drawn to scale.” is included with the figure when degree measures may not be accurately shown and specific lengths may not be drawn proportionally. The following examples illustrate what information can and cannot be assumed from figures.

Example 1:



Since \overline{AD} and \overline{BE} are line segments, angles ACB and DCE are vertical angles. Therefore, you can conclude that $x = y$. Even though the figure is drawn to scale, you should NOT make any other assumptions without additional information. For example, you should NOT assume that $AC = CD$ or that the angle at vertex E is a right angle even though they might look that way in the figure.

Example 2:



Note: Figure not drawn to scale.

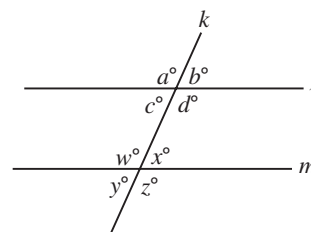
A question may refer to a triangle such as ABC above. Although the note indicates that the figure is not drawn to scale, you may assume the following from the figure:

- ABD and DBC are triangles.
- D is between A and C .
- A , D , and C are points on a line.
- The length of \overline{AD} is less than the length of \overline{AC} .
- The measure of angle ABD is less than the measure of angle ABC .

You may *not* assume the following from the figure:

- The length of \overline{AD} is less than the length of \overline{DC} .
- The measures of angles BAD and BDA are equal.
- The measure of angle ABD is greater than the measure of angle DBC .
- Angle ABC is a right angle.

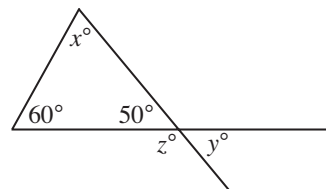
Properties of Parallel Lines



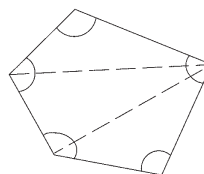
1. If two parallel lines are cut by a third line, the alternate interior angles are congruent. In the figure above, $c = x$ and $w = d$
2. If two parallel lines are cut by a third line, the corresponding angles are congruent. In the figure, $a = w$, $c = y$, $b = x$, and $d = z$
3. If two parallel lines are cut by a third line, the sum of the measures of the interior angles on the same side of this line is 180° . In the figure,

$$c + w = 180, \text{ and } d + x = 180$$

Angle Relationships



1. The sum of the measures of the interior angles of a triangle is 180° . In the figure above, $x = 70$ because $60 + 50 + x = 180$
2. When two lines intersect, vertical angles are congruent. In the figure, $y = 50$
3. A straight angle measures 180° . In the figure, $z = 130$ because $z + 50 = 180$
4. The sum of the measures of the interior angles of a polygon can be found by drawing all diagonals of the polygon from one vertex and multiplying the number of triangles formed by 180° .



Since the polygon is divided into 3 triangles, the sum of the measures of its angles is $3 \times 180^\circ$ or 540° .

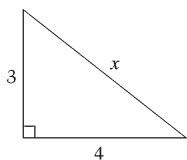
Unless otherwise noted, the term “polygon” will be used to mean a convex polygon, that is, a polygon in which each interior angle has a measure of less than 180° .

A polygon is “regular” if all sides are congruent and all angles are congruent.

Side Relationships

- Pythagorean Theorem: In any right triangle, $a^2 + b^2 = c^2$, where c is the length of the longest side and a and b are the lengths of the two shorter sides.

To find the value of x , use the Pythagorean Theorem.



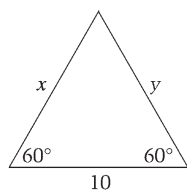
$$x^2 = 3^2 + 4^2$$

$$x^2 = 9 + 16$$

$$x^2 = 25$$

$$x = \sqrt{25} = 5$$

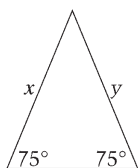
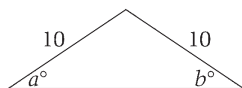
- In any equilateral triangle, all sides are congruent and all angles are congruent.



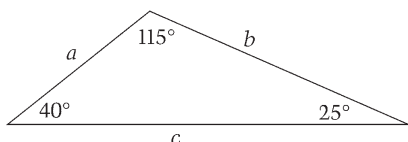
Because the measure of the unmarked angle is 60° , the measure of all angles of the triangle are equal, and, therefore, the lengths of all sides of the triangle are equal.

$$x = y = 10$$

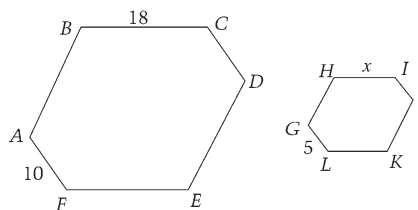
- In an isosceles triangle, the angles opposite congruent sides are congruent. Also, the sides opposite congruent angles are congruent. In the figures below, $a = b$ and $x = y$.



- In any triangle, the longest side is opposite the largest angle, and the shortest side is opposite the smallest angle. In the figure below, $a < b < c$.



- Two polygons are *similar* if and only if the lengths of their corresponding sides are in the same ratio and the measures of their corresponding angles are equal.



If polygons $ABCDEF$ and $GHIJKL$ are similar, then \overline{AF} and \overline{GL} are corresponding sides, so that

$$\frac{AF}{GL} = \frac{10}{5} = \frac{2}{1} = \frac{BC}{HI} = \frac{18}{x}. \text{ Therefore } x = 9 = HI$$

Note: \overline{AF} means the line segment with endpoints A and F , and AF means the length of \overline{AF} .

Area and Perimeter

Rectangles

Area of a rectangle = length \times width = $\ell \times w$

Perimeter of a rectangle = $2(\ell + w) = 2\ell + 2w$

Circles

Area of a circle = πr^2 (where r is the radius)

Circumference of a circle = $2\pi r = \pi d$ (where d is the diameter)

Triangles

Area of a triangle = $\frac{1}{2}(\text{base} \times \text{altitude})$

Perimeter of a triangle = the sum of the lengths of the three sides

Triangle Inequality: The sum of the lengths of any two sides of a triangle must be greater than the length of the third side.

Volume

Volume of a rectangular solid (or cube) = $\ell \times w \times h$

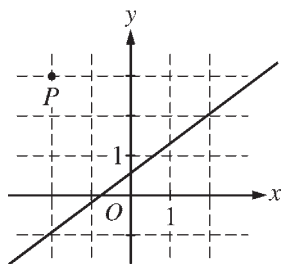
(ℓ is the length, w is the width, and h is the height)

Volume of a right circular cylinder = $\pi r^2 h$

(r is the radius of the base and h is the height)

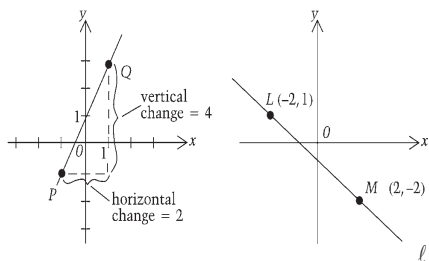
Be familiar with the formulas that are provided in the Reference Information included with the test directions on page 22 and in the Practice Test inserted in this publication.

Coordinate Geometry



- In questions that involve the x - and y -axes, x -values to the right of the y -axis are positive and x -values to the left of the y -axis are negative. Similarly, y -values above the x -axis are positive and y -values below the x -axis are negative. In an ordered pair (x, y) , the x -coordinate is written first. Point P in the figure above appears to lie at the intersection of gridlines. From the figure, you can conclude that the x -coordinate of P is -2 and the y -coordinate of P is 3 . Therefore, the coordinates of point P are $(-2, 3)$. Similarly, you can conclude that the line shown in the figure passes through the point with coordinates $(-2, -1)$ and the point $(2, 2)$.

- Slope of a line = $\frac{\text{rise}}{\text{run}} = \frac{\text{change in } y \text{ coordinates}}{\text{change in } x \text{ coordinates}}$



$$\text{Slope of } \overline{PQ} = \frac{4}{2} = 2$$

$$\text{Slope of } \ell = \frac{1 - (-2)}{-2 - 2} = -\frac{3}{4}$$

A line that slopes upward as you go from left to right has a *positive* slope. A line that slopes downward as you go from left to right has a *negative* slope. A horizontal line has a slope of zero. The slope of a vertical line is undefined.

Parallel lines have the same slope. The product of the slopes of two perpendicular lines is -1 , provided the slope of each of the lines is defined. For example, any line perpendicular to line ℓ has a slope of $\frac{4}{3}$.

The equation of a line can be expressed as $y = mx + b$, where m is the slope and b is the y -intercept. Since the slope of line ℓ is $-\frac{3}{4}$, the equation of line ℓ can be expressed as $y = -\frac{3}{4}x + b$. Since the point $(-2, 1)$ is on the line, $x = -2$ and $y = 1$ must satisfy the equation. Hence, $1 = \frac{3}{2} + b$, so $b = -\frac{1}{2}$ and the equation of line ℓ is $y = -\frac{3}{4}x - \frac{1}{2}$.

Data Analysis, Statistics and Probability

Average

An *average* is a statistic that is used to summarize data. The most common type of average is the *arithmetic mean*. The average (arithmetic mean) of a list of n numbers is equal to the sum of the numbers divided by n . For example the mean of 2, 3, 5, 7, and 13 is equal to

$$\frac{2 + 3 + 5 + 7 + 13}{5} = 6$$

When the average of a list of n numbers is given, the sum of the numbers can be found. For example, if the average of six numbers is 12, the sum of these six numbers is 12×6 , or 72.

The *median* of a list of numbers is the number in the middle when the numbers are ordered from greatest to least or from least to greatest. For example, the median of 3, 8, 2, 6, and 9 is 6 because when the numbers are ordered, 2, 3, 6, 8, 9, the number in the middle is 6. When there are an even number of values, the median is the same as the mean of the two middle numbers. For example, the median of 6, 8, 9, 13, 14, and 16 is the mean of 9 and 13, which is 11.

The *mode* of a list of numbers is the number that occurs most often in the list. For example, 7 is the mode of 2, 7, 5, 8, 7, and 12. The list 2, 4, 2, 8, 2, 4, 7, 4, 9, and 11 has two modes, 2 and 4.

Note: On the PSAT/NMSQT and the SAT, the use of the word *average* refers to the arithmetic mean and is indicated by “average (arithmetic mean).” An exception is when a question involves average rate. Questions involving median and mode will have those terms stated as part of the question’s text.

Probability

Probability refers to the chance that a specific outcome can occur. When outcomes are equally likely, probability can be found by using the following definition:

$$\frac{\text{number of ways that a specific outcome can occur}}{\text{total number of possible outcomes}}$$

For example, if a jar contains 13 red marbles and 7 green marbles, the probability that a marble to be selected from the jar at random will be green is

$$\frac{7}{7+13} = \frac{7}{20} \text{ or } 0.35$$

If a particular outcome can never occur, its probability is 0. If an outcome is certain to occur, its probability is 1. In general, if p is the probability that a specific outcome will occur, values of p fall in the range $0 \leq p \leq 1$. Probability may be expressed as either a decimal, a fraction, or a ratio.

Multiple-Choice Questions

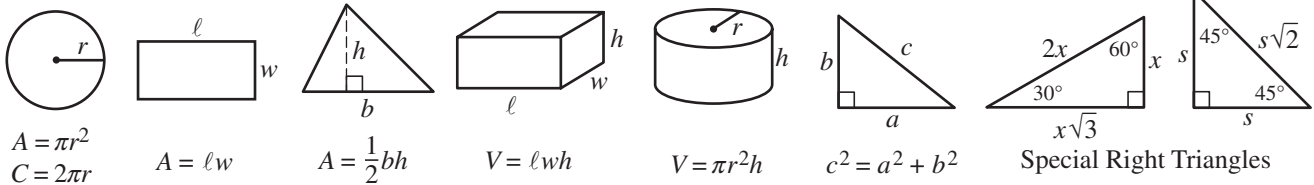
Below are the **directions** that you will see on the test.

Directions: For this section, solve each problem and decide which is the best of the choices given. Fill in the corresponding circle on the answer sheet. You may use any available space for scratch work.

Notes

1. The use of a calculator is permitted.
2. All numbers used are real numbers.
3. Figures that accompany problems in this test are intended to provide information useful in solving the problems. They are drawn as accurately as possible EXCEPT when it is stated in a specific problem that the figure is not drawn to scale. All figures lie in a plane unless otherwise indicated.
4. Unless otherwise specified, the domain of any function f is assumed to be the set of all real numbers x for which $f(x)$ is a real number.

Reference Information



The number of degrees of arc in a circle is 360.
 The sum of the measures in degrees of the angles of a triangle is 180.

Mathematics Questions

Learn about the kinds of math questions that are on the test:

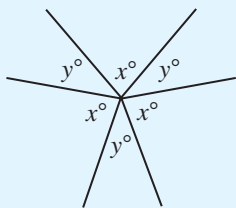
Multiple-Choice (28 questions)

**Student-Produced Response (10 questions)—
you produce and grid your own answers**

The math questions call upon the skills you have learned in arithmetic, algebra and geometry and test how well you can use these skills. Some of the questions are like those in your textbooks. Others require you to use your math skills in original ways to solve problems. The ability to reason logically in a variety of situations is tested throughout.

The PSAT/NMSQT does *not* require you to know proofs of geometric theorems or more advanced concepts from intermediate algebra.

Tip: The test directions show you formulas for the area of a rectangle, the circumference of a circle, and other important reference information. Before you take the test, become familiar with which formulas will be given in the directions. This reference information will also appear in the Student-Produced Response Questions section of the test.

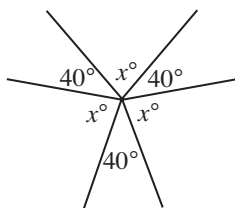


Note: Figure not drawn to scale.

1. In the figure above, if $y = 40$ what is the value of x ?
- (A) 60 (B) 70 (C) 80 (D) 85 (E) 90

Tip: Figures are always drawn to scale unless the question says otherwise.

It is helpful to mark the figure with information given in the problem as shown below.



Now you can visualize the solution as $3x + 120 = 360$, since the sum of the measures of the angles about a point is 360° . Solving this equation yields $3x = 240$ or $x = 80$. The correct answer is (C).

2. For all values of r , let $\star r$ be defined as $\star r = \frac{r+2}{2}$.
If $\star 4 = x$, then $\star x =$
- (A) $\frac{3}{2}$ (B) 2 (C) $\frac{5}{2}$ (D) 3 (E) 4

The symbol $\star r$ is defined in this problem. This is not a definition you should have studied in one of your math classes in school. Since $\star r = \frac{r+2}{2}$, then

$$\star 4 = \frac{4+2}{2} = 3 = x. \text{ Therefore } \star x = \star 3 = \frac{3+2}{2} = \frac{5}{2}.$$

The correct answer is (C).

3. In a competition, Scott received scores of 6, 7, 8, 9, 9, 9, and 10 from the seven judges, respectively. The score of 9 is described by which of the following measures?

- I. The mode
II. The median
III. The average (arithmetic mean)
- (A) I only
(B) II only
(C) I and II only
(D) I and III only
(E) I, II, and III

Tip: Use educated guessing to improve your chances of answering the question correctly if you do not know how to solve the problem completely. Eliminate answers you know to be wrong and select from those remaining, even if you're not completely certain about which answer is correct.

To answer this type of question, consider each of the statements I, II and III separately. The mode is the most frequently used number in a list, which in this case is the number 9. Therefore, I is true. At this point, choice (B) can be eliminated from consideration and you could guess among the choices (A), (C), (D), or (E). You have improved your chances of answering the question correctly since you now have a 1 in 4 chance of answering the question correctly instead of a 1 in 5 chance.

But to improve your chances of using educated guessing to answer the question correctly, consider II. The median is the middle term of a list of numbers when the numbers are listed in either increasing or decreasing order. In this list of seven numbers, the middle number will be the fourth number, which is 9, since the numbers are already listed in increasing order. Since II is true, choices (A) and (D) can be eliminated from consideration. At this point, if you do not know how to find the average of a list of seven numbers, you could guess between choices (C) and (E), which would give you a 1 in 2 chance of answering the question correctly.

The average of seven numbers can be found by adding the numbers together and dividing by 7. In this case, the average of the seven numbers is $\frac{58}{7} = 8\frac{2}{7}$.

Therefore, III is not correct, so the answer is (C).

You can also determine that the average of the numbers does not equal 9 since the three numbers larger than 9 are closer to 9 than the three numbers smaller than 9. This tells you that the average will be less than 9. For this problem, it was not necessary to determine the

exact average; it was sufficient just to determine that the average does not equal 9.

Questions 4–5 refer to the following table, which shows the results of a survey of 50 people.

FAVORITE MUSIC CATEGORIES

	Blues	Classical	Jazz
Women	11	13	6
Men	2	10	8

4. What percentage of the people surveyed were women?

- (A) 30% (B) 33% (C) 57% (D) 60% (E) 67%

5. If a person is to be chosen at random from among the group that favored blues, what is the probability that the person chosen will be a man?

- (A) $\frac{1}{10}$ (B) $\frac{2}{13}$ (C) $\frac{2}{11}$ (D) $\frac{2}{5}$ (E) $\frac{1}{2}$

For question 4, the percentage of the people surveyed who were women can be found by finding the total number of women surveyed (30) and dividing this number by the total number of people surveyed (50). Therefore, $\frac{30}{50} = .60$, or 60%. The correct answer is (D).

For question 5, the total number of people who favored blues is $11 + 2 = 13$. Since 2 of these 13 people are men, there is a $\frac{2}{13}$ chance that a person chosen from this group will be a man. The correct answer is (B).

For both percentage and probability problems it is important to make sure that you are considering the correct base. For the first problem in the set, the base is the 50 people surveyed. For the second problem in the set, the base is the 13 people who favored blues.

6. How many different three-digit numbers greater than 240 can be formed by using three different digits from the set $\{1, 2, 3, 4\}$?

- (A) 24 (B) 16 (C) 14 (D) 12 (E) 10

To determine all possible three-digit numbers that satisfy the conditions in the problem, establish a systematic approach to counting these numbers so that no numbers are forgotten in your count.

Since the three-digit numbers must be greater than 240, the hundreds digit cannot be 1. If the hundreds digit is 2, then the tens digit must equal 4 in order for the number to be greater than 240. That leaves 1 or 3 for the units digit, so 241 and 243 are both greater than 240.

Then consider all possible three-digit numbers whose hundreds digit is three, and then consider all possible three-digit numbers whose hundreds digit is 4.

241	312	412
243	314	413
	321	421
	324	423
	341	431
	342	432

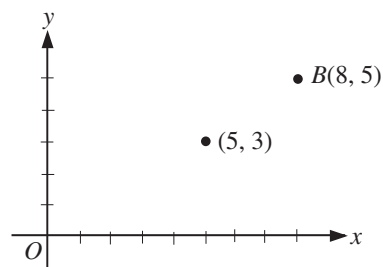
This systematic approach allows you to see that you have not forgotten any numbers in your count. There are 14 numbers that satisfy the conditions in the problem. The correct answer is (C).

7. The coordinates of the center of a circle are $(5, 3)$. If \overline{AB} is a diameter of the circle and the coordinates of B are $(8, 5)$ what are the coordinates of A ?

- (A) $(11, 7)$ (B) $(3, 1)$ (C) $(3, 0)$ (D) $(2, 1)$ (E) $(1, 2)$

Tip: For a geometry problem, if a figure is not drawn, you may find it helpful to draw the figure so you can visualize the problem.

Drawing a figure may be helpful to visualize the solution to this problem. The figure below shows the center of the circle $(5, 3)$ and point B with coordinates $(8, 5)$.



Since \overline{AB} is a diameter of the circle and $(5, 3)$ will be the midpoint of \overline{AB} , it follows that point A will have x and y coordinates both less than the x and y coordinates of the center of the circle.

Let (a, b) be the coordinates of point A . Using the midpoint formula, it follows that $\frac{8+a}{2} = 5$ or $a = 2$ and $\frac{b+5}{2} = 3$ or $b = 1$. The coordinates of point A are therefore $(2, 1)$ and the correct answer is (D).

You can also solve this problem by considering that B is 3 units over and 2 units up from the center. Therefore, point A will be 3 units to the left and 2 units down from $(5, 3)$ or the coordinates of point A will be $(5 - 3, 3 - 2)$ or $(2, 1)$.

x	$f(x)$
0	4
1	2
2	0
3	1
4	3

8. According to the table above, for what value of x does $f(x) = x + 1$?
- (A) 0 (B) 1 (C) 2 (D) 3 (E) 4

This question requires you to understand $f(x)$ notation and to be able to use a table that gives five x values and the five corresponding $f(x)$ values. For example, the first row in the table tells you that $f(0) = 4$.

To solve this problem, you need to locate the row in the table in which the number in the right-hand column, $f(x)$, is one more than the number in the left-hand column, x . The second row, with 1 in the left-hand column and 2 in the right-hand column, is the only one that satisfies this condition. When $x = 1$, $f(x) = 2$, which is $x + 1$ in this case. The correct answer is (B).

9. If x and y are integers such that $1 < |x| < 6$ and $2 < |y| < 5$, what is the least possible value of $x + y$?
- (A) -11 (B) -10 (C) -9 (D) 3 (E) 5

This question involves the symbol for absolute value. The absolute value of x (written as $|x|$) is x when x is positive and $-x$ when x is negative. (Recall that the negative of a negative number is positive.) When x is zero, its absolute value is zero. Here are some examples of absolute value: $|11| = 11$, and $|-11| = 11$, and $|0| = 0$.

In this question, since x is an integer and $1 < |x| < 6$, the possible values of $|x|$ are 2, 3, 4, and 5. If $|x| = 2$, then x can be either 2 or -2 . This is true because the absolute value of 2 is 2 and the absolute value of -2 is also 2. The possible values of x are -5 , -4 , -3 , -2 , 2, 3, 4, 5. Similarly, the possible values of y are -4 , -3 , 3, 4. To make the value of $x + y$ as small as possible, use the smallest possible values for x and y , which are -5 for x and -4 for y . The least possible value for $x + y$ is -9 . The correct answer is (C).

$$C(d) = kd + t$$

10. The Nelson family has discovered that the cost C of their family vacation is a constant k times the length d , in days, of the vacation added to the cost t of transportation to get to and from their vacation spot, as shown by the function above. The Nelson family had to shorten their planned vacation by 3 days. How much less did the shortened vacation cost than the original planned vacation?
- (A) $3d$ (B) $3k$ (C) $3t$ (D) $d(k - 3)$ (E) $k(d - 3)$

Tip: If you have difficulty determining what is being asked in a question, look at the answer choices before you begin working the problem. The answer choices often will help you focus on what you are supposed to look for in the problem.

Suppose that the original planned vacation was for d_1 days. Then the cost of this vacation, based on the formula given in the problem, would be $C(d_1)$ or $kd_1 + t$. The cost of the shortened vacation would then be $C(d_1 - 3)$ or $k(d_1 - 3) + t$ since this vacation will be 3 days shorter. The difference between $C(d_1)$ and $C(d_1 - 3)$ can be written as $(kd_1 + t) - [k(d_1 - 3) + t]$, or $3k$. The correct answer is (B).

Another way to solve this problem is for a student to realize that the transportation cost t to the vacation spot will be the same no matter how long the vacation. Therefore, the transportation cost can be ignored and the shortened vacation will cost $3k$ (the constant k times the 3-day difference) less than the original planned vacation.

The PSAT/NMSQT could contain 1 or 2 questions involving functions as models as illustrated by this question. A model is a mathematical equation, inequality, or expression that describes a real-world situation.

Student-Produced Response Questions

These questions do not include any answer choices. You are required to solve 10 problems and enter your answers in the grids provided on the answer sheet. Read

these directions carefully so you will know them thoroughly before the test. You do not lose any points for a wrong answer to a Student-Produced Response Question.

Directions for Student-Produced Response Questions

Each of the remaining 10 questions requires you to solve the problem and enter your answer by marking the circles in the special grid, as shown in the examples below. You may use any available space for scratch work.

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

Write answer in boxes.

Grid in result.

Fraction line

Answer: 2.5

Decimal point

Answer: 201

Either position is correct.

Note: You may start your answers in any column, space permitting. Columns not needed should be left blank.

- Mark no more than one circle in any column.
- Because the answer sheet will be machine-scored, **you will receive credit only if the circles are filled in correctly.**
- 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 circles accurately.
- Some problems may have more than one correct answer. In such cases, grid only one answer.
- No question has a negative answer.
- **Mixed numbers** such as $3\frac{1}{2}$ must be gridded as

3.5 or $7/2$. (If $\frac{31}{2}$ is gridded, it will be interpreted as $\frac{31}{2}$, not $3\frac{1}{2}$.)

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

Tip: Learn these gridding rules, since misgridding is the most common way to lose points when you know the correct answer.

Note: You should grid only one of the possible correct answers. There are three possible positions for gridding a 2-digit integer—in the center of the grid, to the far right, or to the far left.

- 11.** Set S consists of all multiples of 3 between 10 and 25. Set T consists of all multiples of 4 between 10 and 25. What is one possible number that is in set S but not in set T ?

Set S can be written as $\{12, 15, 18, 21, 24\}$ and set T can be written as $\{12, 16, 20, 24\}$. The numbers that are in set S but not in set T are 15, 18, and 21. Any of these three numbers can be gridded since the question asks for one possible number. A two-digit number can be gridded as shown to the right.

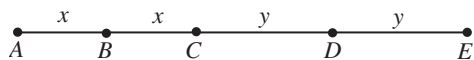
Tip: Remember, only what is gridded will count, so always double check your grids and make sure each column grid matches the number that you have written above the column.



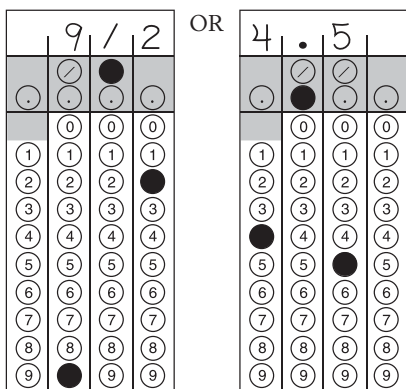
12. In the figure above, B is the midpoint of \overline{AC} and D is the midpoint of \overline{CE} . If the length of \overline{AE} is 9, what is the length of \overline{BD} ?

Tip: Throughout the test, figures will be drawn to scale unless otherwise indicated. (See directions at the beginning of each math section.)

It is helpful to put as much information in a given figure as possible. Since B is the midpoint of \overline{AC} , then $AB = BC$ and these lengths can both be labeled as x . Since D is the midpoint of \overline{CE} , then $CD = DE$ and these lengths can both be labeled as y .



The question asks for the length of \overline{BD} , which from the figure is the value of $x + y$. Since $AE = 9$, $2x + 2y = 9$ or $x + y = \frac{9}{2}$. The fraction $\frac{9}{2}$ or its decimal equivalent, 4.5, can be gridded as shown below.

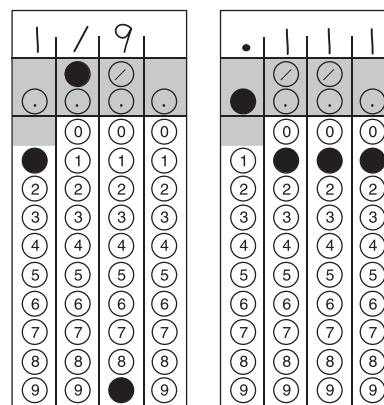


Tip: Know the rules for gridding mixed numbers before taking the test.

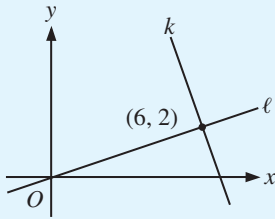
Note: The grid will not accommodate mixed numbers such as $4 \frac{1}{2}$. If you grid $4\frac{1}{2}$, the result will be interpreted as $\frac{41}{2}$, not $4 \frac{1}{2}$. So if you obtain a mixed number as an answer, you will need to change the mixed number to an improper fraction and enter the improper fraction on the grid or enter its decimal equivalent. The mixed number $4 \frac{1}{2}$ can be gridded as $\frac{9}{2}$ or 4.5, as shown in the left column. It is not necessary to reduce a fraction to lowest terms unless the fraction will not fit on the grid.

13. If $\frac{x}{y} = \frac{c}{bx}$ and $x = 3$, what is the value of $\frac{b}{cy}$?

Since $\frac{x}{y} = \frac{c}{bx}$ and $x = 3$ then $\frac{3}{y} = \frac{c}{3b}$, or by cross multiplying, $9b = cy$. To find the value of $\frac{b}{cy}$, substitute $9b$ for cy in this expression. Therefore $\frac{b}{cy} = \frac{b}{9b} = \frac{1}{9}$. The fraction $\frac{1}{9}$ or its decimal equivalent of .111 can be gridded as shown below. (Note that you must grid the most accurate decimal value that the grid can accommodate. Therefore, .1 or .11 will NOT be counted as correct.)



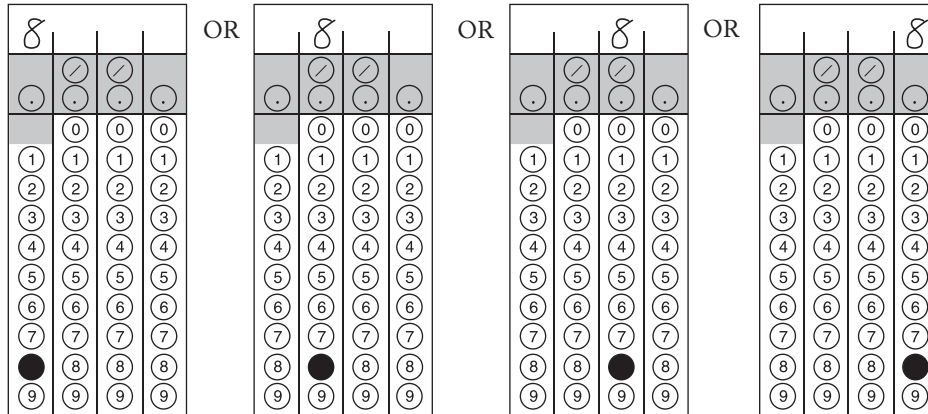
Tip: Know the rules for gridding repeating decimals.



14. In the xy -coordinate system above, the lines ℓ and k are perpendicular. If the point $(4, n)$ is on line k , what is the value of n ?

To solve this problem it is helpful to know the relationship between the slopes of two perpendicular lines. Whenever two nonvertical lines are perpendicular, their slopes are the negative reciprocals of each other. That is, the product of their slopes is -1 .

Line ℓ goes through the origin $(0, 0)$ and through the point $(6, 2)$. Since slope is “rise over run” (change in y over change in x), the slope of ℓ is $\frac{2-0}{6-0}$, which is equivalent to $\frac{1}{3}$. Since k is perpendicular to ℓ , the slope of k is the negative reciprocal of $\frac{1}{3}$, which is -3 . Two points on line k are $(6, 2)$ and $(4, n)$. The slope of k can be expressed as $\frac{2-n}{6-4}$ or $\frac{2-n}{2}$. Since this slope is -3 , you can form the equation $\frac{2-n}{2} = -3$, which simplifies to $2-n = -6$, or $n = 8$. You can check that this is a reasonable answer by approximating the location $(4, 8)$ on the figure and seeing that it does appear to lie on k . The number 8 can be gridded in four ways, as shown below.



Writing Skills Section

Learn about the kinds of writing skills questions that are on the test:

- Improving Sentences** (20 questions)
- Identifying Sentence Errors** (14 questions)
- Improving Paragraphs** (5 questions)

Writing skills questions measure your ability to identify appropriate expressions in standard written English, detect faults in usage and structure, choose effective revisions to sentences and paragraphs, and recognize appropriate writing strategies.

Questions measure language skills you have acquired throughout your life, rather than knowledge acquired in a particular course. The PSAT/NMSQT does not require you to define or use grammatical terms or to write an essay. It does not test spelling or capitalization. All questions are multiple-choice.

Questions relate to characteristics of effective writing. Effective writing (1) is consistent, (2) expresses ideas logically, (3) is precise and clear and (4) follows conventions. Some questions test your ability to recognize effective writing.

The chart below illustrates common writing problems covered by questions in the writing skills section.

Characteristics of Effective Writing

Writing skills questions focus on common problems associated with four characteristics of effective writing. Examples are below.

Writing Characteristic	Sentence Illustrating the Problem	Should Be ...
1. Being Consistent		
Sequence of tenses	After he broke his arm, he is home for two weeks.	After he broke his arm, he was home for two weeks.
Avoiding pronoun shift	If one is tense, they should try to relax.	If one is tense, one should try to relax.
Parallelism	She likes to ski, plays tennis, and flying hang gliders.	She likes to ski, play tennis, and fly hang gliders.
Noun agreement	Carmen and Sarah want to be a pilot.	Carmen and Sarah want to be pilots.
Pronoun reference	Several people wanted the job, and he or she filled out the required applications.	Several people wanted the job, and they filled out the required applications.
Subject-verb agreement	There is eight people on the shore.	There are eight people on the shore.
2. Expressing Ideas Logically		
Coordination and subordination	Tawanda has a rash, and she is probably allergic to something.	Tawanda has a rash; she is probably allergic to something.
Logical comparison	Nathan grew more vegetables than his neighbor's garden.	Nathan grew more vegetables than his neighbor grew.
Modification and word order	Barking loudly, the tree had the dog's leash wrapped around it.	Barking loudly, the dog wrapped its leash around the tree.
3. Being Clear and Precise		
Avoiding ambiguous and vague pronouns	In the newspaper they say that few people voted.	The newspaper reported that few people voted.
Diction	He circumvented the globe on his trip.	He circumnavigated the globe on his trip.
Avoiding wordiness	There are many problems in the contemporary world in which we live.	There are many problems in the contemporary world.
Avoiding improper modification	If your car is parked here while not eating in the restaurant, it will be towed away.	If you park here and do not eat in the restaurant, your car will be towed away.
4. Following Conventions		
Pronoun case	He sat between you and I at the stadium.	He sat between you and me at the stadium.
Idiom	Natalie had a different opinion towards her.	Natalie had a different opinion about her.
Comparison of modifiers	Of the sixteen executives, Naomi makes more money.	Of the sixteen executives, Naomi makes the most money.
Sentence fragment	Fred having to go home early.	Fred has to go home early.

Some questions contain no errors, requiring you to recognize effective writing.

Improving Sentences

These questions require that you choose the best, most effective form of a sentence. Below are the **directions** you will see on the test.

The following sentences test correctness and effectiveness of expression. Part of each sentence or the entire sentence is underlined; beneath each sentence are five ways of phrasing the underlined material. Choice A repeats the original phrasing; the other four choices are different. If you think the original phrasing produces a better sentence than any of the alternatives, select choice A; if not, select one of the other choices.

In making your selection, follow the requirements of standard written English; that is, pay attention to grammar, choice of words, sentence construction, and punctuation. Your selection should result in the most effective sentence — clear and precise, without awkwardness or ambiguity.

EXAMPLE:

Laura Ingalls Wilder published her first book and she was sixty-five years old then.

- (A) and she was sixty-five years old then
- (B) when she was sixty-five
- (C) at age sixty-five years old
- (D) upon the reaching of sixty-five years
- (E) at the time when she was sixty-five

(A) ● (C) (D) (E)

1. The young composer, turning out countless jingles for short-lived television commercials, and tormented by her sense of isolation from serious music.

- (A) commercials, and tormented by
- (B) commercials, tormented by
- (C) commercials, was tormented by
- (D) commercials; she found torment in
- (E) commercials; she was tormented by

The problem with the original sentence is that it is grammatically incomplete — a mere sentence fragment and not a true sentence at all. It contains no main verb — only the participles *turning* and *tormented* — and so does not express a complete thought. Of the five choices, only (C) produces a grammatically acceptable sentence. Changing *and* to *was* before the participle *tormented* creates a main verb, *was tormented*, that combines with the subject *The young composer* to express a complete thought. The corrected sentence reads: The young composer, turning out countless jingles for short-lived television **commercials, was tormented by** her sense of isolation from serious music.

- Choice (B) fails to remedy the error because it does not provide the main verb that the original lacks.
- Choices (D) and (E) do provide main verbs — *found* and *was tormented*, respectively — but each also makes an inappropriate use of a semicolon. In each case, the clause that precedes the semicolon lacks a main verb and so fails to express a complete thought.

2. Chaplin will not be remembered for espousing radical causes any more than they will remember Wayne for endorsing conservative political candidates.

- (A) any more than they will remember Wayne
- (B) as will Wayne not be remembered
- (C) any more than Wayne will be remembered
- (D) just as they will not remember Wayne
- (E) no more than Wayne will be remembered

The original sentence is incorrect because *they will remember Wayne* is not structurally parallel to *Chaplin will not be remembered*: the construction shifts awkwardly from passive to active voice. It also makes vague use of the pronoun *they*, which has no logical antecedent in the sentence. Choice (C) is the correct answer: it remedies the problem of the unclear pronoun reference and clearly establishes the parallel structure needed to compare Chaplin with Wayne. The corrected sentence reads: Chaplin will not be remembered for espousing radical causes **any more than Wayne will be remembered** for endorsing conservative political candidates.

- Choice (B) is confused in word order and logic.
- Choice (D), like choice (A), suffers from unclear pronoun reference (*they*) and lack of parallel structure.
- In choice (E), *no more than* results in a double negative.

Tip: Compare the structures of phrases that are joined by conjunctions like *and*, *but*, *or*, *than*, and *as*. Parallel phrasing is generally preferable to nonparallel phrasing.

3. Being as she is a gifted storyteller, Linda Goss is an expert at describing people and places.

- (A) Being as she is a gifted storyteller
- (B) In being a gifted storyteller
- (C) A gifted storyteller
- (D) Although she is a gifted storyteller
- (E) Telling stories giftedly

The introductory clause of the original sentence, choice (A), which reproduces it, is wordy — weighed down by unnecessary verbiage. Choice (C) is the correct answer. With an economy of means, *A gifted storyteller* succinctly modifies the proper noun that follows (*Linda Goss*). The corrected sentence reads: **A gifted storyteller**, Linda Goss is an expert at describing people and places.

- Choice (B) contains the unnecessary and unidiomatic *In being*.
- Choice (D) is grammatically acceptable, but illogical: *Although* suggests a contrast of ideas where none exists.
- Choice (E) is unacceptably awkward; what it means to convey should have been expressed as *Gifted at telling stories*.

Tip: Phrases involving the word *being* are often (though not always) awkward or wordy and may usually be more elegantly or concisely formulated in some other way.

Identifying Sentence Errors

Questions of this type ask you to find errors in sentences provided. Below are the **directions** you will see on the test.

The following sentences test your ability to recognize grammar and usage errors. Each sentence contains either a single error or no error at all. No sentence contains more than one error. The error, if there is one, is underlined and lettered. If the sentence contains an error, select the one underlined part that must be changed to make the sentence correct. If the sentence is correct, select choice E. In choosing answers, follow the requirements of standard written English.

EXAMPLE:

The other delegates and him immediately
 A B C
 accepted the resolution drafted by the
 D
 neutral states. No error
 E

(A) ● (C) (D) (E)

4. The huge Amazon River, which stretches across Brazil,
 A
has many islands; one of these is so large that its area
 B C
exceeds Switzerland . No error
 D E

This sentence contains a logical comparison error. In choice (D) the area of an island is compared with Switzerland itself rather than with the area of Switzerland. The corrected sentence reads: The huge Amazon River, which stretches across Brazil, has many islands; one of these is so large that its area **exceeds that of Switzerland**.

- There is no error in choice (A) or in choice (B). The singular verbs *stretches* and *has* agree with the sentence's singular subject, *Amazon River*.
- There is no error in choice (C). The phrase *one of these* properly refers to a particular island.

Tip: Comparisons should always be between things of a similar nature. Beware of sentences that compare a part of one thing with the whole of another.

5. Crabs living in polluted waters will come
 A
in contact with large numbers of disease-causing
 B
 microorganisms because it feeds by filtering
 C D
 nutrients from water. No error
 E

This sentence contains a noun-pronoun agreement error at (C). The pronoun *it* is singular, while the noun to which *it* presumably refers, *Crabs*, is plural. The corrected sentence reads: Crabs living in polluted waters will come in contact with large numbers of disease-causing microorganisms because **they feed** by filtering nutrients from water.

- There is no error in choice (A). The words *living in* begin a phrase that appropriately modifies the noun *Crabs*.
- There is no error in choice (B). The phrase *in contact with* idiomatically complements the verb *come*.
- There is no error in choice (D). The words *by filtering* properly introduce a phrase that modifies the verb *feeds*.

Tip: When you encounter a pronoun (like *he, she, it, him, her, they, them, his, hers, its, or theirs*), ask yourself what it refers to and whether it is singular or plural. What the pronoun refers to (its antecedent) must always match the pronoun in number (singular or plural).

6. Whatever price the company finally sets for the fuel
 A
will probably be determined as much by politics
 B C
 as by a realistic appraisal of the market. No error
 D E

There is nothing wrong with this sentence. The correct answer is choice (E), **No error**.

- In choice (A), the adverb *finally* appropriately qualifies the verb *sets*.
- In choice (B), the adverb *probably* is correctly placed between the helping verb *will* and the main verb *be*.
- In choice (C), the phrase *as much by* properly initiates a comparison that continues with the words *as by* later in the sentence.
- In choice (D), the preposition *of* is idiomatically used to complement the noun *appraisal*.

Tip: Choose A, B, C, or D only if you think the sentence contains a grammar or usage error. DO NOT choose A, B, C, or D, simply because you can think of an alternate phrasing for one of the underlined portions of the sentence. If you find no grammar or usage error in the sentence, choose E.

Improving Paragraphs

Questions of this kind ask you to make choices about improving the logic, coherence, or organization in a flawed passage. Here are the **directions** that you will see on the test.

The following passage is an early draft of an essay. Some parts of the passage need to be rewritten.

Read the passage and select the best answers for the questions that follow. Some questions are about particular sentences or parts of sentences and ask you to improve sentence structure or word choice. Other questions ask you to consider organization and development. In choosing answers, follow the requirements of standard written English.

Questions 7–10 are based on the following passage.

(1) This summer I felt as if I were listening in on the Middle Ages with a hidden microphone. (2) No, there were no microphones in those days. (3) But there were letters, and sometimes these letters speak to me like voices from very long ago.

(4) A book I found contained selected letters from five generations of a family. (5) The Pastons, who lived in a remote part of England over 500 years ago.

(6) Getting anywhere in the Middle Ages was really hard, with deep rivers and few bridges and sudden snowstorms coming on in the empty lands between settlements. (7) An earl rebelled in London, so that a messenger rode for days to tell the distant head of the Paston family of a feared civil war.

(8) Through the letters a modern reader can sense their anxieties about rebellious sons and daughters, belligerent neighbors, outbreaks of plague, and shortages of certain foods and textiles. (9) Unbelievably, there is a 1470 love letter. (10) The man who wrote it ends “I beg you, let no one see this letter. (11) As soon as you have read it, burn it, for I would not want anyone to see it.” (12) I was sitting on the front porch with bare feet on the hottest afternoon in July and I read that with a shiver. (13) I had been part of a centuries-old secret.

7. Which of the following sentences would be most logical to insert before sentence 4?

- (A) I first came across these letters while browsing in a library.
- (B) No, I am not dreaming; I have been reading them.
- (C) On the contrary, microphones are a recent invention.
- (D) Obviously, a library can open the door to mystery.
- (E) However, letters are not the oldest form of communication.

This question asks you to improve the transition between the first paragraph and the second. Sentence 3 refers to letters; sentence 4 refers to a book containing letters. Choice (A), which indicates that the author of the essay discovered the letters in a library (where, of course, books are kept), provides an effective transition to sentence 4, which refers to a book of letters the author found. The correct answer, then, is choice (A).

- Choice (B) is inappropriate because it provides a response to a question that has not been raised.
- Choice (C) is incorrect because the reference to microphones occurs in sentence 2, not in sentence 3. If (C) were inserted before sentence 4, it would disruptively return to a subject that sentence 3 moves away from.
- Choice (D) is a generalization that adds nothing to the essay, particularly as the writer does not indicate the source of the book.
- Choice (E), too, is inappropriate, as the observation that letters are not the oldest form of communication is irrelevant to the general theme of the essay.

Tip: When considering which sentence to insert at a particular point in a passage, be sure to reread the sentence that comes immediately before and the sentence that comes immediately after the point indicated.

8. In context, which is the best version of the underlined portions of sentences 4 and 5 (reproduced below)?

A book I found contained selected letters from five generations of a family. The Pastons, who lived in a remote part of England over 500 years ago.

- (A) (as it is now)
- (B) a family. The Pastons, living
- (C) a family; it was the Pastons living
- (D) the Paston family, who lived
- (E) the family named Paston and living

On its own, sentence 5 is grammatically incomplete and therefore needs to be incorporated into the preceding sentence. Choice (D) effectively joins the two sentences, appropriately subordinating the second clause through the use of *who*. The best version reads: A book I found contained selected letters from five generations of **the Paston family, who lived** in a remote part of England over 500 years ago.

- Choice (A) is unacceptable because it leaves sentence 5 incomplete.
- Choice (B) merely substitutes a participial phrase (*living . . .*) for a relative clause (*who lived . . .*), leaving sentence 5 without a main clause to express a complete thought.
- Choice (C) joins sentences 4 and 5 with a semicolon but introduces an ambiguous pronoun (*it*) into the second clause.
- Choice (E) ineffectively converts sentence 5 into an awkwardly coordinated participial phrase (*and living in . . .*) rather than a subordinate clause (*who lived in . . .*).

9. In context, which of the following is the best version of the underlined portion of sentence 7 (reproduced below)?
An earl rebelled in London, so that a messenger rode for days to tell the distant head of the Paston family of a feared civil war.

- (A) (As it is now)
- (B) An earl had rebelled in London, so
- (C) For example, with a rebelling earl in London
- (D) While an earl rebels in London,
- (E) Once, when an earl rebelled in London,

Sentence 7 presents an example illustrating the general statement in sentence 6 about the difficulty of travel during the Middle Ages. However, it fails to provide a transitional phrase that would signal this move from general to particular. Choice (E) appropriately introduces the transitional adverb *Once* to indicate that what follows is an example, and it effectively relegates the less pertinent of two details to a subordinate clause:

when an earl rebelled in London. The best version reads: **Once, when an earl rebelled in London,** a messenger rode for days to tell the distant head of the Paston family of a feared civil war.

- Choice (A) is unacceptable because it leaves the sentence without a smooth transition.
- Choice (B), like Choice (A), provides no transitional phrase to link sentence 7 with sentence 6.
- Choice (C) is unsatisfactory because of the ambiguous phrase *with a rebelling earl in London*.
- Choice (D) is wrong because it employs the present tense (*rebels*) where the context clearly calls for the past.

Tip: When revising a sentence in a passage, consider not only whether the revised sentence is grammatically correct but also how the revised sentence fits into the context.

10. In context, which is the best revision to make to sentence 8 (reproduced below)?

Through the letters a modern reader can sense their anxieties about rebellious sons and daughters, belligerent neighbors, outbreaks of plague, and shortages of certain foods and textiles.

- (A) Insert “one’s reading of” after “Through”.
- (B) Change “their” to “the Pastons”.
- (C) Change “sense” to “record”.
- (D) Delete some of the examples.
- (E) Insert “etc.” after “textiles”.

In sentence 8, it is unclear to whom the plural pronoun *their* refers. Even in the preceding sentence, only single individuals are mentioned: the earl, the messenger, and the head of the Paston family. Choice (B) resolves the uncertainty by making clear that the anxieties referred to are those of the Pastons. The correct sentence reads: Through the letters a modern reader can sense **the Pastons’** anxieties about rebellious sons and daughters, belligerent neighbors, outbreaks of plague, and shortages of certain foods and textiles.

- Choices (A), (C), (D), and (E) all fail to address the unclear pronoun reference and, for that reason alone, are unsatisfactory.
- Choice (A) adds nothing of value to the existing sentence.
- Choice (C) results in an illogical sentence: modern readers cannot “record” anxieties in letters written hundreds of years ago.
- Choice (D) unwisely deletes some examples, all of which are distinct and evocative.
- Choice (E) adds no specific information to the sentence.

Now go try the PSAT/NMSQT Practice Test!