

Spring 2019

# PSAT™ 10

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# Student Guide



PSAT 10  
information



Test-taking  
advice and tips



An official  
practice test



# About 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 over 6,000 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 further information, visit [collegeboard.org](https://collegeboard.org).

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## PSAT 10 Customer Service

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

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## Using This Guide

Taking the PSAT 10 is a great way to find out how ready you are for college and career. Just as important, taking the PSAT 10 connects you to College Board programs and services that can propel you toward the opportunities you've earned through your own hard work. We've created this guide to help you:

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

## What the PSAT 10 Measures

The PSAT 10 is focused on the skills and knowledge at the heart of education. It measures:

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

The same habits and choices that lead to success in school will help you get ready for the PSAT 10. The best way to prepare for the test is to:

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

## Organization of the PSAT 10

The PSAT 10 has three tests: the Reading Test, the Writing and Language Test, and the Math Test. The tests break down like this:

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

## How the PSAT 10 Is Scored

All multiple-choice questions are scored the same way: one point for each correct answer and zero points for incorrect answers. No points are subtracted for incorrect answers or answers left blank. The table below shows you all the scores you'll receive on the PSAT 10.

PSAT 10 Score Reported	Details	Score Range
<b>Total Score</b>	Sum of the two section scores	320–1520
<b>Section Scores (2)</b>	Evidence-Based Reading and Writing, and Math	160–760
<b>Test Scores (3)</b>	Reading, Writing and Language, and Math	8–38
<b>Cross-Test Scores (2)</b>	<b>Analysis in History/Social Studies and Analysis in Science:</b> Based on selected questions in the Reading Test, Writing and Language Test, and Math Test. These scores show how well you use your skills to analyze texts and solve problems in these subject areas.	8–38
<b>Subscores (7)</b>	<b>Reading and Writing and Language:</b> Command of Evidence and Words in Context. <b>Writing and Language:</b> Expression of Ideas and Standard English Conventions. <b>Math:</b> Heart of Algebra, Problem Solving and Data Analysis, and Passport to Advanced Math.	1–15

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## What Scores You Will Receive

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

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

If your school tests in February or March, scores will be available online by mid-April, and paper score reports will be sent to schools in May. If your school tests in April, scores will be available online by mid-May, and paper score reports will be sent to schools in June. If you haven't received your score report by late June, see your counselor. Your school will be able to print a copy for you.

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## Before Test Day

### Create a College Board Account

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

- access your PSAT 10 scores when they become available
- sign up for free, personalized practice through Official SAT Practice and Khan Academy®

Just visit [collegeboard.org](https://collegeboard.org) and click "Sign Up" to get started.

- If you move to a new school after you've been approved for accommodations, your new school needs to confirm your continued eligibility. Print your SSD eligibility letter from your student account to give to your new school.
- If you are approved for extended time for specific subject areas only (math, for example), you will only get those accommodations in the relevant sections or tests.
- Talk to your SSD coordinator before test day to confirm what accommodations you are approved for and any additional information you need for testing.
- Bring your SSD eligibility letter with you on test day in case there are any questions.

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### If You Need Testing Accommodations

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

**IMPORTANT:** Supports such as glossaries, translated test directions, and extended time are available for English learners. The process for English learner (EL) supports differs from requesting accommodations for disabilities. If you need EL support, work with your school to ensure it will be there on test day.

### Applying for Accommodations

- Work with your school's SSD coordinator or counselor to apply for accommodations. Your SSD coordinator can help determine what accommodations are best for you and submit a request online.

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### Student Search Service

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

- You can join for free and directly hear from a diverse group of eligible colleges, universities, and scholarship and other educational programs.
- When you take a College Board test, you can opt in so eligible colleges, universities, and scholarship and other educational programs can send you information. You'll be asked to provide information about yourself when filling out the answer sheet. You may also provide additional information on the College Board's college planning website, BigFuture™, at [bigfuture.org](https://bigfuture.org).

- Only eligible colleges, universities, and scholarship and other educational programs can participate. They most often search on expected graduation date, cumulative grade point average (GPA), and intended college major.
- We never sell nor share your test scores, grades, or telephone numbers.
- We don't allow any commercial advertising.

## How Student Search Service Works

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

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

**Being contacted by a college or university doesn't mean you've been admitted.** You must submit an application to be considered for admission. The eligible colleges, universities, and scholarship and other educational programs that participate want to find students who will succeed and thrive on their campus and in classes, programs, scholarships, and special activities. Student Search Service is simply a way for eligible colleges and universities to reach prospective students to let them know about the opportunities they offer. For more information about Student Search Service, visit our site at [studentsearch.collegeboard.org](https://studentsearch.collegeboard.org).

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

## Scholarship Opportunities

The College Board partners with several programs that provide millions of dollars in scholarships to qualified students. Help them find you by opting in to Student Search Service when you take the PSAT 10.

The following eligible programs are scholarship partners as of fall 2018; please check [psat.org/scholarships](https://psat.org/scholarships) for updates.

- American Indian Graduate Center ([aigcs.org](https://aigcs.org))
- Asian & Pacific Islander American Scholarship Fund ([apiasf.org](https://apiasf.org))
- Cobell Scholarship ([cobellscholar.org](https://cobellscholar.org))
- Coca-Cola Scholars Foundation ([coca-colascholarsfoundation.org](https://coca-colascholarsfoundation.org))
- Daniels Fund ([danielsfund.org](https://danielsfund.org))
- George Snow Scholarship Fund ([scholarship.org](https://scholarship.org))
- Greenhouse Scholars ([greenhousescholars.org](https://greenhousescholars.org))
- Hispanic Scholarship Fund ([hsf.net](https://hsf.net))
- Horatio Alger Association ([horatioalger.org](https://horatioalger.org))
- Jack Kent Cooke Foundation ([jkcf.org](https://jkcf.org))
- The Jackie Robinson Foundation ([jackierobinson.org](https://jackierobinson.org))
- Ron Brown Scholar Program ([ronbrown.org](https://ronbrown.org))
- TheDream.US ([thedream.us](https://thedream.us))
- United Negro College Fund ([uncf.org](https://uncf.org))
- Washington State Opportunity Scholarship ([waopportunityscholarship.org](https://waopportunityscholarship.org))

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## How to Prepare

The PSAT 10 measures the knowledge and skills you have developed in reading, writing and language, and math. This test is not about memorizing words and facts you will never use again. Instead, it focuses on what you have already learned in school and what you will need to succeed in college and career. It measures your reasoning and critical-thinking skills, which will be important to you through high school, college, and beyond.

This guide includes the following to help you prepare:

- Advice, sample passages, and sample questions for the Reading Test and the Writing and Language Test
- Advice, sample questions, and calculator information for the Math Test
- PSAT 10 Practice Test #2, a full-length practice test

You can also go online for more help and information:

- Go to [collegeboard.org/psatpractice](https://collegeboard.org/psatpractice) for additional sample questions, practice test answer explanations, and another full-length practice test (Practice Test #1).
- Go to [psat.org/scoring](https://psat.org/scoring) for more information about scoring and free, personalized practice from Khan Academy.

## Instant Practice Test Scoring with Scan and Score

Take the PSAT 10 on paper to simulate test day. Then take a picture of your answer sheet and get an instant score.

Here's how Scan and Score works:

1. Use the PSAT 10 Practice Test #2 included in this guide or download and print Practice Test #1 from [psat.org/practice](https://psat.org/practice) (select **Take the Practice Test** under “Paper-and-Pencil Practice”). Be sure to follow the instructions, and use the official answer sheet to bubble in your answers.

2. After you've finished the practice test, get instant feedback and question-by-question results from your phone. Just open the free app *Daily Practice for the New SAT*. (Go to [psat.org/psatscoring](https://psat.org/psatscoring) for more information.)

3. Keeping the app open, snap a picture of your answer sheet with your phone's camera.

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

## On Test Day

### Items to Bring for Testing

#### What to Bring

- Acceptable photo ID in case you need it (see <https://collegereadiness.collegeboard.org/sat/taking-the-test/id-requirements> for more information)
- Two No. 2 pencils with soft erasers
- An acceptable calculator for use on the Math Test – Calculator portion of the test (see Calculator Use on page 27)
- Earphones, only if you're approved for assistive technology-compatible or MP3 audio accommodations and the school doesn't provide earphones

#### Nice to Have

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

#### What Not to Bring

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

- Cell phones or smartphones (phones may be collected before the test, and returned before dismissal)

- Audio players or recorders
- Tablets, laptops, notebooks, or any other personal computing devices, including wearable technology
- Separate timers of any type
- Cameras or any other photographic equipment
- Smartwatches and any other devices that can be used to record, transmit, receive, or play back audio, photographic, text, or video content
- Protractors, compasses, rulers
- Highlighters, colored pens, or colored pencils
- Pamphlets or papers of any kind
- Dictionaries or other books

#### What to Do If...

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

**You are homeschooled and want to take the PSAT 10:** Make arrangements in advance with your local high school or another nearby school that is administering the test. (For a list of schools in your area, go to [ordering.collegeboard.org/testordering/publicSearch](https://ordering.collegeboard.org/testordering/publicSearch).) If this is not possible, contact the PSAT 10 office (see inside cover).

**You will be studying in another country when the test is given:** Contact the PSAT 10 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 10 office will send you instructions.

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## Test Security and Fairness Policies

The College Board's Test Security and Fairness policies are designed to give every student a fair and equitable opportunity to demonstrate their skills and knowledge. They're also designed to prevent anyone from gaining an unfair advantage on College Board tests. When you take the PSAT 10, you acknowledge that you have read, understand, and will comply with our Test Security and Fairness policies as detailed here.

- You must present acceptable photo ID for admission if any school staff member asks you to.
- Allowing someone to impersonate you to take a College Board test, or engaging in impersonation to take a test for someone else, is strictly prohibited.
- Creating a disturbance or failing to follow instructions given by testing staff is prohibited.
- Sharing test questions or answers is prohibited at any time unless test content is released as part of a College Board service.
- Using phones and certain other electronic devices is prohibited in PSAT 10 test sites.
- You are prohibited from accessing secured test materials at any time before or after the test.
- If you exit the building before testing ends, your scores may be canceled.
- While you're taking the test, do not allow anyone to see the test questions or your answers.
- The timing of each test section is strictly scheduled. You cannot skip ahead or go back to a previous test or test section in the test book or answer sheet while taking the PSAT 10.
- You may not consult textbooks, other people, electronic devices, or any other resources during the test or during breaks.
- Calculators may not be shared, and may only be on your desk during the parts of the PSAT 10 they're approved for.

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

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## Phones and Electronic Devices Policy

Devices that can be used to communicate test content or share answers are not allowed in the test site. You may not bring electronics of any kind with you on test day. If, however, you forget to leave a device at home, you'll be instructed to turn off all electronic devices. The staff in your testing room may collect cell phones and wearable technology before the test begins. Be sure to turn off your phone and/or watch alarm, if you have one or both. Test sites are serious about security and quiet, so prohibited devices that aren't collected must be turned off and stored in your bag on the side of the room away from the testing area.

If your device makes noise or you are seen with it at any time, including during breaks, you will be dismissed immediately, your scores will be canceled, and the device may be collected and its contents inspected. The College Board is not responsible for loss of or damage to personal items, including electronic devices, while you're in the test site.

The College Board regularly bolsters its security efforts in order to protect the integrity of the test and ensure a fair PSAT 10 administration. From time to time, the College Board, Educational Testing Service (ETS), and its testing staff may employ enhanced security measures, such as the use of metal detecting wands to detect mobile phones and other electronic devices. Test takers should be prepared to undergo these security measures to ensure a fair testing environment.

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

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## Taking the Test

### Testing Guidelines

- Plan ahead and bring equipment that's in good working order. Testing staff may not have extra batteries or calculators.
- When marking answers:
  - ♦ Use a No. 2 pencil with a soft eraser on all parts of the answer sheet. Do not use a pen or mechanical pencil.
  - ♦ Make sure you fill in the entire bubble darkly and completely.
  - ♦ Erase any changes you make as completely as possible.

- On the PSAT 10, there's no penalty for guessing; you simply earn points for the questions you answer correctly. Try to give your best answer to every question—there's no advantage to leaving them blank.
- Use a watch to time yourself—no separate timers or alarms are allowed, as they distract other test takers. Choose a watch that doesn't have advanced communication or recording features (these are not allowed and may be collected from you in the testing room).
- Don't skip sections. Doing this could result in score cancellation and/or delays.
- Store any snacks you bring under your desk. You may only eat snacks during breaks.
- If you're testing where the staff doesn't know you, keep your ID with you at all times, especially if you leave the testing room.

## Calculator Rules

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

- You can't share your calculator.
- If you use your calculator to share or exchange information during the test, or to remove test questions or answers from the test room, you'll be dismissed and your scores canceled.
- If you're using a calculator with a large (characters one inch high or more) or raised display that might be visible to other test takers, the proctor may move you to another seat.

## Protecting Your Privacy: Use of Student Information

The College Board recognizes the importance of protecting your privacy. We've designed privacy principles that govern how we use your personal information. The College Board lets students choose what personal information they provide to us and how we share it. See [collegeboard.org/privacy-policy](https://collegeboard.org/privacy-policy) for complete data privacy information.

The College Board collects personal information only to administer tests and deliver educational opportunities to students. The College Board lets students and families decide how much additional information they disclose beyond the minimum information needed to

connect students with college success, including taking the PSAT 10.

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

We only share student information for educational purposes (or under court order). These purposes include:

- We report scores to students and their schools, districts, and states to help measure educational progress and support a student's path to college.
- If students request it, we use information to send customized college planning information.
- We share a limited amount of personal data with our partners—and only what's needed for administering testing services and producing and generating student score reports.
- On our website, we use student information to customize and personalize the content users see, such as important reminders about PSAT 10 test dates and college-planning milestones.
- We share deidentified student information with researchers so they can study it for College Board programs and services that help solve education issues.

Students' use of Khan Academy practice resources will be governed by the Terms and Conditions on the Khan Academy website. See more Privacy Policies later in this guide.

## Telemarketing Scams

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

# After Test Day

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## Useful Resources

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

**BigFuture**—Our website helps you plan for college and find the college that’s best for you. Visit [collegeboard.bigfuture.org](https://collegeboard.bigfuture.org).

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

# Evidence-Based Reading and Writing

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

## Reading Test Overview

- Total questions: 47 passage-based reading questions with multiple-choice responses.
- Time allotted: 60 minutes.
- Calculators may not be used or be on your desk.
- All questions are worth one point regardless of the type or difficulty. You're not penalized for guessing, so it's to your advantage to answer each question as best you can.
- The questions often include line references to direct you to relevant part(s) of the passage(s).

## What the Reading Test Is Like

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

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

## What You'll Read

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

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

## What the Reading Test Measures

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

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

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

## Command of Evidence

Some questions ask you to:

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

## Words in Context

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

The PSAT 10 focuses on your ability to:

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

## Analysis in History/Social Studies and in Science

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

## Tips for the Reading Test

To answer each question, consider what the passage or passages say directly, and use careful reasoning to draw supportable inferences and conclusions from the passage(s). The best answer to each question is derived from what is stated or implied in the passage(s) rather

than from prior knowledge of the topics covered. All of the questions are passage based.

- Reading carefully is the key to finding the best answer to each question. The information you need to answer each Reading Test question is always in the passage(s). Don't be misled by an answer that looks correct but isn't supported by the actual text of the passage(s).
- The questions don't increase in difficulty from easy to hard. Instead, they are presented as logically as possible, with general questions about central ideas and themes, point of view, overall text structure, and the like coming early in the sequence. After that come more specific questions about such matters as facts, details, and words in context.
- Stay with a passage until you have answered as many questions as you can before you proceed to the next passage. Don't jump from passage to passage.
- The questions often include references to help direct you to relevant part(s) of the passage(s). You may have to look elsewhere in the passage, however, in order to find the best answer to the question.
- In your test booklet, mark each question you skip so that you can easily go back to it later if you have time.
- Remember that all questions are worth one point regardless of the type or difficulty. You don't lose points for guessing wrong, so you should try to answer each question as best you can.

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## Sample Reading Test Materials

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

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

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

**DIRECTIONS**

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

**Questions 1-4 are based on the following passage.**

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

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

It was during their night walks back to the farm that he felt most intensely the sweetness of this communion. He had always been more sensitive 25 than the people about him to the appeal of natural beauty. His unfinished studies had given form to this sensibility and even in his unhappiest moments field and sky spoke to him with a deep and powerful persuasion. But hitherto the emotion had remained 30 in him as a silent ache, veiling with sadness the beauty that evoked it. He did not even know whether any one else in the world felt as he did, or whether he was the sole victim of this mournful privilege. Then he learned that one other spirit had trembled 35 with the same touch of wonder: that at his side, living under his roof and eating his bread, was a creature to whom he could say: "That's Orion down yonder; the big fellow to the right is Aldebaran, and the bunch of little ones—like bees swarming—they're the 40 Pleiades . . ." or whom he could hold entranced before a ledge of granite thrusting up through the fern

while he unrolled the huge panorama of the ice age, and the long dim stretches of succeeding time. The fact that admiration for his learning mingled with 45 Mattie's wonder at what he taught was not the least part of his pleasure. And there were other sensations, less definable but more exquisite, which drew them together with a shock of silent joy: the cold red of sunset behind winter hills, the flight of cloud-flocks 50 over slopes of golden stubble, or the intensely blue shadows of hemlocks on sunlit snow. When she said to him once: "It looks just as if it was painted!" it seemed to Ethan that the art of definition could go no farther, and that words had at last been found to utter 55 his secret soul. . . .

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

1

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

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

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

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

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

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

2

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

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

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

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

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

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

3

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

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

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

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

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

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

4

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

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

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

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

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

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

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

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

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

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

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

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

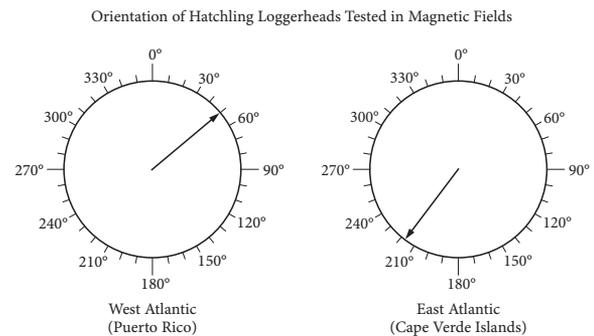
Using his coil-surrounded tank, Lohmann could mimic the magnetic field at different parts of the Earth's surface. If he simulated the field at the northern edge of the gyre, the hatchlings swam southwards. If he simulated the field at the gyre's southern edge, the turtles swam west-northwest. These experiments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

He tweaked his magnetic tanks to simulate the fields in two positions with the same latitude at opposite ends of the Atlantic. If the field simulated the west Atlantic near Puerto Rico, the turtles swam northeast. If the field matched that on the east Atlantic near the Cape Verde Islands, the turtles swam southwest. In the wild, both headings would keep them within the safe, warm embrace of the

North Atlantic gyre.

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

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



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

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

5

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

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

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

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

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

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

6

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

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

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

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

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

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

7

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

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

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

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

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

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

8

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

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

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

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

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

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

9

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

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

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

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

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

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

## Writing and Language Test Overview

The PSAT 10 Writing and Language Test asks you to be an editor and improve passages that were written especially for the test—and that include deliberate errors.

- Total questions: 44 passage-based questions with multiple-choice responses.
- Time allotted: 35 minutes.
- Calculators may not be used or be on your desk.
- All questions are worth one point regardless of the type or difficulty. You're not penalized for incorrect guesses, so it's to your advantage to answer each question as best you can.

### What the Writing and Language Test Is Like

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

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

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

be placed or to correct a misinterpretation of a scientific table or graph.

### What You'll Read

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

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

### What the Writing and Language Test Measures

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

### Command of Evidence

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

### Words in Context

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

### Expression of Ideas

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

### Standard English Conventions

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

### Analysis in History/Social Studies and in Science

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

### Tips for the Writing and Language Test

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

conventions of standard written English grammar, usage, and punctuation.

- Rote recall of language rules isn't tested, nor are any questions based on short snippets of text taken out of context. The best answer to each question represents how a writer should develop, organize, and use language in a multiparagraph passage. You are demonstrating that you can make context-based improvements to the text.
- The most common format for the questions offers three alternatives to an underlined portion of the passage along with the option of not changing the passage's original wording. Remember to answer these questions in the context of the whole passage.

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## Sample Writing and Language Test Materials

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

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

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

**DIRECTIONS**

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

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

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

**Questions 1-5 are based on the following passage.**

**Dong Kingman: Painter of Cities**

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

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

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

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

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

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

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

1

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

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

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

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

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

2

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

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

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

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

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

3

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

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

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

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

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

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

4

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

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

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

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

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

5

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

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

<b>Estimated Difficulty:</b> Medium	<b>Key:</b> D
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**Choice D** is the best answer because it combines the sentences logically and efficiently, with the original second sentence becoming a participial phrase describing Kingman.

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

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

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

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

### A Life in Traffic

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

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

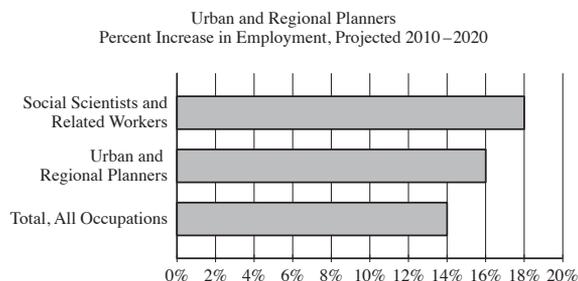
The work of transportation planners generally includes evaluating current transportation needs, assessing the effectiveness of existing facilities, and improving those facilities or **7** they design new ones. Most transportation planners work in or near cities, but some are employed in rural areas.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

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

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

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

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



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

**6**

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

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

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

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

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

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

**7**

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

<b>Estimated Difficulty:</b> Easy	<b>Key:</b> C
-----------------------------------	---------------

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

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

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

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

8

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

<b>Estimated Difficulty:</b> Easy	<b>Key:</b> B
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**Choice B** is the best answer because it correctly uses an apostrophe to indicate possession and does not introduce any unnecessary punctuation.

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

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

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

9

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

<b>Estimated Difficulty:</b> Medium	<b>Key:</b> B
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**Choice B** is the best answer because the transitional phrase “For instance” logically indicates that what follows provides an example related to the previous sentence. “Representatives from the local public health department” is an example of the kinds of people with whom transportation planners work.

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

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

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

10

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

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

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

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

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

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

11

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

<b>Estimated Difficulty:</b> Easy	<b>Key:</b> A
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**Choice A** is the best answer because “who pursue careers in transportation planning” is, in context, a restrictive clause that should not be set off with punctuation. “Who pursue careers in transportation planning” is essential information defining who the “people” are.

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

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

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

12

- Which choice completes the sentence with accurate data based on the graph?
- A) NO CHANGE
  - B) warning, however, that job growth in urban and regional planning will slow to 14 percent by 2020.
  - C) predicting that employment of urban and regional planners will increase 16 percent between 2010 and 2020.
  - D) indicating that 14 to 18 percent of urban and regional planning positions will remain unfilled.

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

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

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

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

# Math

The PSAT 10 Math Test covers math practices, emphasizing problem solving, modeling, using tools strategically, and using algebraic structure. The questions test your ability to solve problems and use appropriate approaches and tools strategically.

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## Math Test Overview

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

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

## What the Math Test Is Like

Instead of testing you on every math topic, the PSAT 10 asks you to use the math that you'll rely on most in all sorts of situations. Questions on the Math Test are designed to mirror the problem solving and modeling you'll do in:

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

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

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

## What the Math Test Measures

### Fluency

The Math Test is a chance to show that you:

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

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

### Conceptual Understanding

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

### Applications

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

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## Calculator Use

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

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

## Calculator Smarts

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

## Acceptable Calculators

Only battery-operated, handheld equipment can be used for testing. No power cords are allowed. A list of acceptable graphing calculators can be found in this section and online at [sat.org/calculators](http://sat.org/calculators).

Calculators permitted during testing include:

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

The following graphing calculators are permitted:

<b>Casio</b>	FX-9860 series	<b>Hewlett-Packard</b>	NumWorks	TI-84 Plus CE
FX-6000 series	CFX-9800 series	HP-9G	Smart <sup>2</sup>	TI-84 Plus Silver
FX-6200 series	CFX-9850 series	HP-28 series	<b>Sharp</b>	TI-84 Plus C Silver
FX-6300 series	CFX-9950 series	HP-38G	EL-5200	TI-84 Plus T
FX-6500 series	CFX-9970 series	HP-39 series	EL-9200 series	TI-84 Plus CE-T
FX-7000 series	FX 1.0 series	HP-40 series	EL-9300 series	TI-85
FX-7300 series	Algebra FX	HP-48 series	EL-9600 series*	TI-86
FX-7400 series	2.0 series	HP-49 series	EL-9900 series	TI-89
FX-7500 series	FX-CG-10	HP-50 series	<b>Texas Instruments</b>	TI-89 Titanium
FX-7700 series	FX-CG-20 series	HP Prime	TI-73	TI-Nspire
FX-7800 series	FX-CG-50	<b>Radio Shack</b>	TI-80	TI-Nspire CX
FX-8000 series	FX-CG-500*	EC-4033	TI-81	TI-Nspire CM-C
FX-8500 series	Graph25 series	EC-4034	TI-82	TI-Nspire CAS
FX-8700 series	Graph35 series	EC-4037	TI-83	TI-Nspire CX CAS
FX-8800 series	Graph75 series	<b>Other</b>	TI-83 Plus	TI-Nspire CM-C CAS
FX-9700 series	Graph95 series	Datexx DS-883	TI-83 Plus Silver	TI-Nspire CX-C CAS
FX-9750 series	Graph100 series	Micronta	TI-84 Plus	

\*The use of the stylus is not permitted.

## Unacceptable Calculators

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

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

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## Answering Student-Produced Response Questions

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

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

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## Tips for the Math Test

- Familiarize yourself with the directions ahead of time.
- You don't have to memorize formulas. Commonly used formulas are provided with the test directions at the beginning of each Math Test portion. Other formulas that are needed are provided with the test questions themselves. It's up to you to decide which formula is appropriate to a question.

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

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## Sample Math Test Materials

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

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

## Math Test – No Calculator

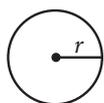
### DIRECTIONS

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

### NOTES

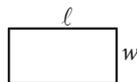
- The use of a calculator **is not permitted**.
- All variables and expressions used represent real numbers unless otherwise indicated.
- Figures provided in this test are drawn to scale unless otherwise indicated.
- All figures lie in a plane unless otherwise indicated.
- Unless otherwise indicated,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

### REFERENCE

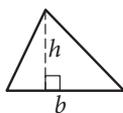


$$A = \pi r^2$$

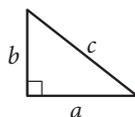
$$C = 2\pi r$$



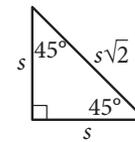
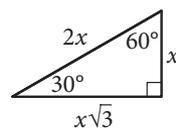
$$A = \ell w$$



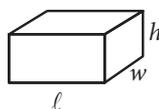
$$A = \frac{1}{2}bh$$



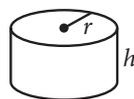
$$c^2 = a^2 + b^2$$



Special Right Triangles



$$V = \ell wh$$



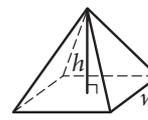
$$V = \pi r^2 h$$



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



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



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

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

The number of radians of arc in a circle is  $2\pi$ .

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

**1**

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

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

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

<b>Estimated Difficulty:</b> Medium	<b>Key:</b> B
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**Choice B** is correct. Simplifying the numerators yields  $\frac{5k+3}{6} = \frac{9+k}{9}$ , and cross-multiplication gives  $45k+27 = 54+6k$ . Solving for  $k$  yields  $k = \frac{9}{13}$ .

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

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

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

**2**

$$\begin{aligned} 4x - y &= 3y + 7 \\ x + 8y &= 4 \end{aligned}$$

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

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

<b>Estimated Difficulty:</b> Medium	<b>Key:</b> C
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**Choice C** is correct. There are several solution methods possible, but all involve persevering in solving for the two variables and calculating the product. For example, combining like terms in the first equation yields  $4x-4y=7$  and then multiplying that by 2 gives  $8x-8y=14$ . When this transformed equation is added to the second given equation, the  $y$ -terms are eliminated, leaving an equation in just one variable:  $9x=18$ , or  $x=2$ . Substituting 2 for  $x$  in the second equation (one could use either to solve) yields

$2+8y=4$ , which gives  $y = \frac{1}{4}$ . Finally, the product  $xy$  is  $2 \times \frac{1}{4} = \frac{1}{2}$ .

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

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

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

3

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

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

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

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

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

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

portion of the job that the faster printer could complete in 2 hours is  $(2)\left(\frac{2}{x}\right) = \frac{4}{x}$ .

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

4

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

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

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

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

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

Isolate the  $x^2$  term by factoring.

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

Make a perfect square in the parentheses.

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

Move the extra term out of the parentheses.

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

Factor inside the parentheses.

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

Simplify the remaining terms.

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

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

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

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

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

## Student-Produced Response Math Questions

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

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

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

Answer: 201—either position is correct

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

5

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

<b>Estimated Difficulty:</b> Medium	<b>Key:</b> 24
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Using the structure of the equation allows you to quickly solve the problem if you see that multiplying both sides of the equation by 6 clears the fractions and yields  $3x + 2y = 24$ .

6

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

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

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

## Math Test – Calculator

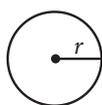
### DIRECTIONS

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

### NOTES

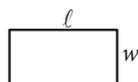
1. The use of a calculator **is permitted**.
2. All variables and expressions used represent real numbers unless otherwise indicated.
3. Figures provided in this test are drawn to scale unless otherwise indicated.
4. All figures lie in a plane unless otherwise indicated.
5. Unless otherwise indicated,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

### REFERENCE

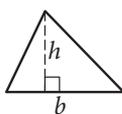


$$A = \pi r^2$$

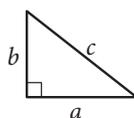
$$C = 2\pi r$$



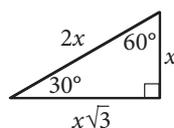
$$A = \ell w$$



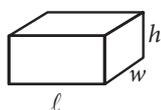
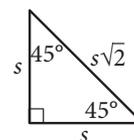
$$A = \frac{1}{2}bh$$



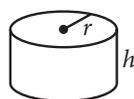
$$c^2 = a^2 + b^2$$



Special Right Triangles



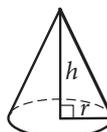
$$V = \ell wh$$



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



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



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



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

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

The number of radians of arc in a circle is  $2\pi$ .

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

1

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

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

**Estimated Difficulty:** Easy

**Key:** B

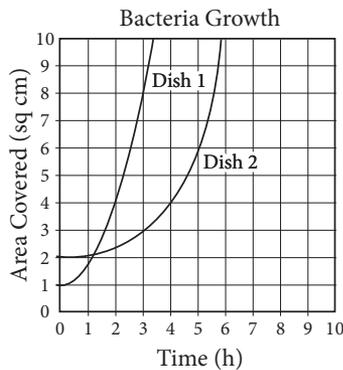
**Choice B** is correct. The total charge that Aaron will pay is the room rate, the 8% tax on the room rate, and a fixed fee. If Aaron stayed  $x$  nights, then the total charge is  $(99.95x + 0.08 \times 99.95x) + 5$ , which can be rewritten as  $1.08(99.95x) + 5$ .

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

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

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

2



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

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

**Estimated Difficulty:** Medium

**Key:** B

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

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

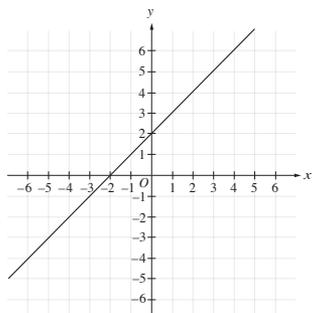
**Choice C** is incorrect. At time  $t = 0$ , Dish 1 is covered with 50% less bacteria than is Dish 2, but Dish 2 is covered with 100% more, not 50% more, bacteria than is Dish 1.

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

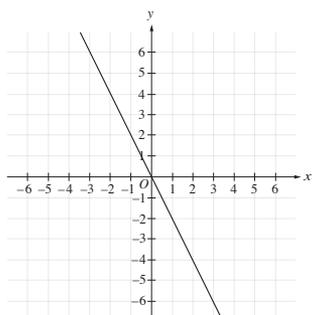
3

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

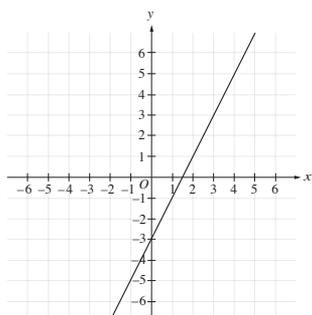
A)



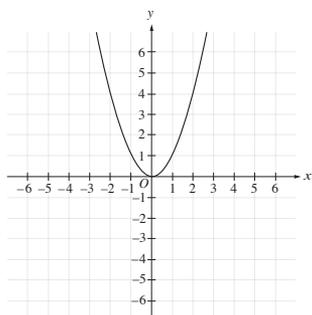
B)



C)



D)



Estimated Difficulty: Hard

Key: B

Choice B is correct. Manipulating the equation

to solve for  $y$  gives  $y = \left(\frac{1+k}{1-k}\right)x$ , revealing that

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

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

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

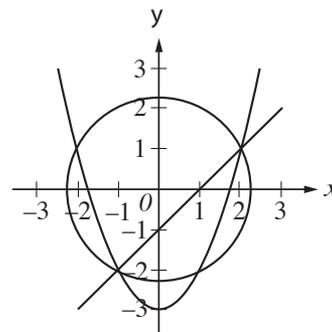
Choice D is incorrect. If you selected this answer, you may not have seen that term  $k(x + y)$  can be multiplied out and the variables  $x$  and  $y$  isolated, and wrongly concluded that the graph of the equation cannot be a line.

4

$$x^2 + y^2 = 5$$

$$y = x^2 - 3$$

$$x - y = 1$$



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

A) One

B) Two

C) Three

D) Four

Estimated Difficulty: Easy

Key: B

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

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

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

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

**5**

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

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

**Estimated Difficulty:** Hard**Key:** A

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

$$\begin{array}{r} 2x+1 \\ 2x-1 \overline{)4x^2} \\ \underline{4x^2-2x} \phantom{0} \\ 2x \phantom{0} \\ \underline{2x-1} \\ 1 \end{array}$$

Since the remainder 1 matches the numerator in  $\frac{1}{2x-1}$ , it is clear that  $A = 2x + 1$ .

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

$$\frac{(2x-1)(2x+1)+1}{2x-1} = 2x+1 + \frac{1}{2x-1}. \text{ From this,}$$

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

$$A = \frac{4x^2}{2x-1} - \frac{1}{2x-1} \text{ and simplify. As with the first}$$

approach, this approach also requires you to recognize  $4x^2 - 1$  as a difference of squares that factors.

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

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

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

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

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

## Student-Produced Response Math Questions

For question 6, you are asked to solve the problem and enter your answer in the grid, as described on page 33 of this booklet.

**6**

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

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

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

**Estimated Difficulty:** Easy**Key:** .076,  $\frac{7}{92}$ 

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

# What You Need to Know About Taking the PSAT 10

The College Board's Test Security and Fairness policies are designed to give every student a fair and equitable opportunity to demonstrate college readiness. They're also designed to prevent anyone from gaining an unfair advantage on PSAT 10 tests. Please read this section carefully.

## PSAT 10 Terms and Conditions

By taking the PSAT 10, you're certifying that you are the person whose personal information is being provided for the test and that the information you are providing is accurate. Giving false or misleading information about yourself, such as name, address, date of birth, current grade level, expected graduation date, or name of high school, can result in an investigation, cancellation of scores, and a testing ban for College Board assessments, and such other actions as the College Board, in its sole discretion, deems appropriate. We reserve the right to cancel scores from College Board test administrations that occurred prior to the test administration at issue.

- If your school participates in a PSAT 10 administration and/or a bulk registration process for the test, the College Board may receive your personal information, including first name, last name, sex, date of birth, and mailing address, from your school. This information will be kept secure and added to your permanent College Board record to be used for score reporting purposes as well as the other purposes that are outlined in this guide. By taking the PSAT 10 test and signing the PSAT 10 answer sheet, you acknowledge that your school has provided this information to the College Board and consent to the College Board retaining this information.
- Creating fake or multiple College Board student accounts, intentionally or inadvertently, is strictly prohibited and can result in an investigation, the merging of relevant records, and penalties that may include score cancellation or being banned from taking College Board assessments, including AP, SAT, and SAT Subject Tests.
- PSAT 10 policies are subject to change at any time for test security or other reasons. The College Board will attempt to provide adequate prior notice, although circumstances may limit our ability to do so.
- The College Board and the test site will not be responsible for personal property, including prohibited items, brought to the test site on test day that becomes lost, stolen, or damaged.
- In the event of a test security-related concern, public health threat, natural disaster, terrorist act, or other unexpected events or circumstances, the College Board may cancel testing for all or a specific group of test takers. When this occurs, the College Board will notify test takers in advance if possible. We will communicate test cancellations and, when feasible, alternative test dates for affected test takers.
- To ensure the integrity of the PSAT 10, the College Board reserves the right to bar any individual or group of individuals from registering for and/or taking any College Board test.
- If the College Board becomes aware that you or someone else may be in imminent danger, we reserve the right to contact the appropriate individuals or agencies, including your high school or law enforcement agencies. We might also provide personal information to those contacted.
- Except as otherwise indicated in these terms and conditions, the College Board, including its subcontractors, shall not be liable to test takers, schools, school districts, or anyone claiming by or through them for any damages, including direct, indirect, special, incidental, consequential, exemplary, or punitive damages, which are caused by, arising from, or otherwise related to the failure of testing staff, the students or the school, or the test site to comply with the College Board's and its subcontractors' test security and test administration policies and procedures, whether or not the College Board has been advised of the possibility of such damages.
- The College Board takes steps to ensure that answer sheets are properly handled and scored. In the unlikely event of a problem with shipping or otherwise processing answer sheets, or score reports, or with scoring the test, or score reporting, the College Board will correct the error, if possible, schedule a makeup test for impacted test takers, or provide a refund of the test fee if the test taker has paid it. These are the sole remedies for test takers in relation to such issues. The College Board has sole discretion in determining whether to score lost answer sheets that are eventually recovered.

## Additional Privacy Policies

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

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

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

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

Other than disputes involving an "Invalid Scores" review (see the "Invalid Scores" section later in this guide) or infringement of the College Board's intellectual property rights, all disputes **against the College Board and/or any or all of its contractors**, that relate in any way to registering for or taking the PSAT 10, including but not limited to requesting or receiving test accommodations, score reporting, and the use of test taker data, shall exclusively be resolved by a single arbitrator through binding, individual arbitration administered by the American Arbitration Association ("AAA"), under the AAA Consumer Arbitration Rules in effect at the time

a request for arbitration is filed with the AAA. Copies of the AAA Rules can be located at [www.adr.org](http://www.adr.org).

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

## Grounds for Score Cancellation

As the College Board test administrator, ETS has in place procedures designed to ensure that the PSAT 10 is fairly administered on test day. The College Board and ETS strive to report scores that accurately reflect the performance of every test taker. Accordingly, ETS standards and procedures for administering tests have two primary goals: give all test takers equivalent opportunities to demonstrate their abilities, and prevent any test taker from gaining an unfair advantage over others.

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

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

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

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

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

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

**Misconduct** When, based upon observations during an administration or a review of evidence thereafter, the College Board, ETS, or testing staff find misconduct in connection with a test, the test taker may be dismissed from the test site, or we may decline to score the test or may cancel the test score, and such test taker may be banned from taking future College Board assessments. Repeated infractions during the test may result in dismissal from the test site or score cancellation.

Misconduct includes, but is not limited to:

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

**Testing History** Based on a test taker’s testing history, their scores may be canceled without applying procedures normally used for students as explained in the “Invalid Scores” section.

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

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

If at any time before, during, or after a review of questionable scores we find that test misconduct has occurred, we may treat the matter under our misconduct procedures; in that case, the options just described under this “Invalid Scores” section or the “Testing Irregularities” section, as applicable, will not be

available, even if those options were previously offered. We have sole discretion in determining whether to treat potential testing violations under this section or the “Misconduct” section on the previous page.

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

**Reporting Misconduct or Suspicious Behavior** All PSAT 10 tests are administered under strict supervision and security measures. To report any suspected violation of our Test Security and Fairness policies, or any suspicion concerning the security of an PSAT 10 test administration, please contact the Office of Testing Integrity by phone at 609-406-5430 between 7:30 a.m. and 5:30 p.m. Eastern Time, by fax at 609-406-9709, or by email at [testsecurity@info.collegeboard.org](mailto:testsecurity@info.collegeboard.org) as soon as possible. All information will be held strictly confidential unless required to disclose it by law.

## Reporting Violations

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







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