**Ivy Global**

# SAT Online Practice Test 2

Edition 1.0

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## SAT Online Practice Test 2

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## About the Publisher

Ivy Global is a pioneering education company that delivers a wide range of educational services.

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# Contents

# How to Use this Booklet

# How to Use this Booklet

Welcome, students and parents! This booklet is intended to help students prepare for the SAT, a test administered by the College Board. It contains an overview of the SAT, a few basic test-taking tips, a full-length practice test, and an answer key with scoring directions.

The first key to succeeding on the SAT is knowing the test. This booklet will help you know what to expect and build your confidence. Reading the quick tips in this booklet can help you avoid common mistakes. Taking this practice test will help you become more familiar with the format, pacing, and content of the exam. Reviewing your scores, as well as any questions you missed, can help you determine what you might need to continue studying in order to do your best on test day.

This booklet is not a fully comprehensive test-prep book; for an in-depth study guide to the SAT, we recommend Ivy Global's *New SAT Guide*.

## The Test

The SAT is a test used by most US colleges to help make admissions decisions. It is administered in 5 sections: the Reading section, the Writing and Language section, the Math (No Calculator) section, the Math (Calculator) section, and the optional Essay. Most questions on the SAT are multiple choice, with four answer options. Some problems in the Math section are student-produced response questions: rather than selecting from a list of answer options, you will have to solve a problem and enter a number on your answer sheet. The Essay is a writing assignment, and you will be given lined paper to write your essay.

The SAT is a timed exam. You will be allowed a limited amount of time for each section. Set aside a total of 4 hours for this exam. The amount of time that you will have for each section is given on the first page of each section. If you are taking a proctored exam, your proctor will also announce the time that you are allowed for each section.

Detailed directions are provided at the beginning of each section. Read these directions carefully when taking practice exams. You should try to be totally familiar with the directions for each section by the time that you take the real SAT.

## Quick Tips

Read every question and all answer options carefully. Many students select incorrect answers when they could easily find the correct answers simply because they misread the questions or didn't look at all of the answer options. Read carefully to avoid careless errors.

Use the Process of Elimination. Sometimes the easiest way to find the correct answer is to cross out the answers in your test booklet that you know are incorrect. Don't cross answers out on your answer sheet, as stray marks could be counted as incorrect answers.

Make your best guess on every problem. You should always try to find the correct answer, but if you feel that you're stumped then you should try to make your best guess. There's no penalty for guessing.

Don't be afraid to write in your test booklet, but always remember to mark your answer on your answer sheet. The scorers won't look at your test booklet: you won't get points off for writing in it, nor will you receive credit for showing your work.

# Practice Test

# SAT

## Directions

- Work on just one section at a time.

- If you complete a section before the end of your allotted time, use the extra minutes to check your work on that section only. Do NOT use the time to work on another section.

## Using Your Test Booklet

- No credit will be given for anything written in the test booklet. You may use the test booklet for scratch paper.

- You are not allowed to continue answering questions in a section after the allotted time has run out. This includes marking answers on your answer sheet that you previously noted in your test booklet.

- You are not allowed to fold pages, take pages out of the test booklet, or take any pages home.

## Answering Questions

- Each answer must be marked in the corresponding row on the answer sheet.

- Each bubble must be filled in completely and darkly within the lines.

  Correct ● Incorrect ⬤⊗⊘◕ ✪◯◉✹

- Be careful to bubble in the correct part of the answer sheet.

- Extra marks on your answer sheet may be marked as incorrect answers and lower your score.

- Make sure you use a No. 2 pencil.

## Scoring

- You will receive one point for each correct answer.

- Incorrect answers will NOT result in points deducted. Even if you are unsure about an answer, you should make a guess.

**DO NOT BEGIN THIS TEST**

**UNTIL YOUR PROCTOR TELLS YOU TO DO SO**
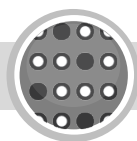
For printable answer sheets, please visit **ivyglobal.com/study**.

## Section 1

| | A | B | C | D | | A | B | C | D | | A | B | C | D | | A | B | C | D | | A | B | C | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ○ | ○ | ○ | ○ | 12 | ○ | ○ | ○ | ○ | 23 | ○ | ○ | ○ | ○ | 34 | ○ | ○ | ○ | ○ | 45 | ○ | ○ | ○ | ○ |
| 2 | ○ | ○ | ○ | ○ | 13 | ○ | ○ | ○ | ○ | 24 | ○ | ○ | ○ | ○ | 35 | ○ | ○ | ○ | ○ | 46 | ○ | ○ | ○ | ○ |
| 3 | ○ | ○ | ○ | ○ | 14 | ○ | ○ | ○ | ○ | 25 | ○ | ○ | ○ | ○ | 36 | ○ | ○ | ○ | ○ | 47 | ○ | ○ | ○ | ○ |
| 4 | ○ | ○ | ○ | ○ | 15 | ○ | ○ | ○ | ○ | 26 | ○ | ○ | ○ | ○ | 37 | ○ | ○ | ○ | ○ | 48 | ○ | ○ | ○ | ○ |
| 5 | ○ | ○ | ○ | ○ | 16 | ○ | ○ | ○ | ○ | 27 | ○ | ○ | ○ | ○ | 38 | ○ | ○ | ○ | ○ | 49 | ○ | ○ | ○ | ○ |
| 6 | ○ | ○ | ○ | ○ | 17 | ○ | ○ | ○ | ○ | 28 | ○ | ○ | ○ | ○ | 39 | ○ | ○ | ○ | ○ | 50 | ○ | ○ | ○ | ○ |
| 7 | ○ | ○ | ○ | ○ | 18 | ○ | ○ | ○ | ○ | 29 | ○ | ○ | ○ | ○ | 40 | ○ | ○ | ○ | ○ | 51 | ○ | ○ | ○ | ○ |
| 8 | ○ | ○ | ○ | ○ | 19 | ○ | ○ | ○ | ○ | 30 | ○ | ○ | ○ | ○ | 41 | ○ | ○ | ○ | ○ | 52 | ○ | ○ | ○ | ○ |
| 9 | ○ | ○ | ○ | ○ | 20 | ○ | ○ | ○ | ○ | 31 | ○ | ○ | ○ | ○ | 42 | ○ | ○ | ○ | ○ | | | | | |
| 10 | ○ | ○ | ○ | ○ | 21 | ○ | ○ | ○ | ○ | 32 | ○ | ○ | ○ | ○ | 43 | ○ | ○ | ○ | ○ | | | | | |
| 11 | ○ | ○ | ○ | ○ | 22 | ○ | ○ | ○ | ○ | 33 | ○ | ○ | ○ | ○ | 44 | ○ | ○ | ○ | ○ | | | | | |

## Section 2

| | A | B | C | D | | A | B | C | D | | A | B | C | D | | A | B | C | D | | A | B | C | D |
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| 1 | ○ | ○ | ○ | ○ | 10 | ○ | ○ | ○ | ○ | 19 | ○ | ○ | ○ | ○ | 28 | ○ | ○ | ○ | ○ | 37 | ○ | ○ | ○ | ○ |
| 2 | ○ | ○ | ○ | ○ | 11 | ○ | ○ | ○ | ○ | 20 | ○ | ○ | ○ | ○ | 29 | ○ | ○ | ○ | ○ | 38 | ○ | ○ | ○ | ○ |
| 3 | ○ | ○ | ○ | ○ | 12 | ○ | ○ | ○ | ○ | 21 | ○ | ○ | ○ | ○ | 30 | ○ | ○ | ○ | ○ | 39 | ○ | ○ | ○ | ○ |
| 4 | ○ | ○ | ○ | ○ | 13 | ○ | ○ | ○ | ○ | 22 | ○ | ○ | ○ | ○ | 31 | ○ | ○ | ○ | ○ | 40 | ○ | ○ | ○ | ○ |
| 5 | ○ | ○ | ○ | ○ | 14 | ○ | ○ | ○ | ○ | 23 | ○ | ○ | ○ | ○ | 32 | ○ | ○ | ○ | ○ | 41 | ○ | ○ | ○ | ○ |
| 6 | ○ | ○ | ○ | ○ | 15 | ○ | ○ | ○ | ○ | 24 | ○ | ○ | ○ | ○ | 33 | ○ | ○ | ○ | ○ | 42 | ○ | ○ | ○ | ○ |
| 7 | ○ | ○ | ○ | ○ | 16 | ○ | ○ | ○ | ○ | 25 | ○ | ○ | ○ | ○ | 34 | ○ | ○ | ○ | ○ | 43 | ○ | ○ | ○ | ○ |
| 8 | ○ | ○ | ○ | ○ | 17 | ○ | ○ | ○ | ○ | 26 | ○ | ○ | ○ | ○ | 35 | ○ | ○ | ○ | ○ | 44 | ○ | ○ | ○ | ○ |
| 9 | ○ | ○ | ○ | ○ | 18 | ○ | ○ | ○ | ○ | 27 | ○ | ○ | ○ | ○ | 36 | ○ | ○ | ○ | ○ | | | | | |

## Section 3 (No-Calculator)

| | A | B | C | D | | | A | B | C | D | | | A | B | C | D | | | A | B | C | D | | | A | B | C | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ○ | ○ | ○ | ○ | | 4 | ○ | ○ | ○ | ○ | | 7 | ○ | ○ | ○ | ○ | | 10 | ○ | ○ | ○ | ○ | | 13 | ○ | ○ | ○ | ○ |
| 2 | ○ | ○ | ○ | ○ | | 5 | ○ | ○ | ○ | ○ | | 8 | ○ | ○ | ○ | ○ | | 11 | ○ | ○ | ○ | ○ | | 14 | ○ | ○ | ○ | ○ |
| 3 | ○ | ○ | ○ | ○ | | 6 | ○ | ○ | ○ | ○ | | 9 | ○ | ○ | ○ | ○ | | 12 | ○ | ○ | ○ | ○ | | 15 | ○ | ○ | ○ | ○ |

Only answers that are gridded will be scored. You will not receive credit for anything written in the boxes.

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| 0 ○ ○ ○ ○ | 0 ○ ○ ○ ○ | 0 ○ ○ ○ ○ | 0 ○ ○ ○ ○ | 0 ○ ○ ○ ○ |
| 1 ○ ○ ○ ○ | 1 ○ ○ ○ ○ | 1 ○ ○ ○ ○ | 1 ○ ○ ○ ○ | 1 ○ ○ ○ ○ |
| 2 ○ ○ ○ ○ | 2 ○ ○ ○ ○ | 2 ○ ○ ○ ○ | 2 ○ ○ ○ ○ | 2 ○ ○ ○ ○ |
| 3 ○ ○ ○ ○ | 3 ○ ○ ○ ○ | 3 ○ ○ ○ ○ | 3 ○ ○ ○ ○ | 3 ○ ○ ○ ○ |
| 4 ○ ○ ○ ○ | 4 ○ ○ ○ ○ | 4 ○ ○ ○ ○ | 4 ○ ○ ○ ○ | 4 ○ ○ ○ ○ |
| 5 ○ ○ ○ ○ | 5 ○ ○ ○ ○ | 5 ○ ○ ○ ○ | 5 ○ ○ ○ ○ | 5 ○ ○ ○ ○ |
| 6 ○ ○ ○ ○ | 6 ○ ○ ○ ○ | 6 ○ ○ ○ ○ | 6 ○ ○ ○ ○ | 6 ○ ○ ○ ○ |
| 7 ○ ○ ○ ○ | 7 ○ ○ ○ ○ | 7 ○ ○ ○ ○ | 7 ○ ○ ○ ○ | 7 ○ ○ ○ ○ |
| 8 ○ ○ ○ ○ | 8 ○ ○ ○ ○ | 8 ○ ○ ○ ○ | 8 ○ ○ ○ ○ | 8 ○ ○ ○ ○ |
| 9 ○ ○ ○ ○ | 9 ○ ○ ○ ○ | 9 ○ ○ ○ ○ | 9 ○ ○ ○ ○ | 9 ○ ○ ○ ○ |

## Section 4 (Calculator)

| | A | B | C | D | | | A | B | C | D | | | A | B | C | D | | | A | B | C | D | | | A | B | C | D |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | ○ | ○ | ○ | ○ | | 7 | ○ | ○ | ○ | ○ | | 13 | ○ | ○ | ○ | ○ | | 19 | ○ | ○ | ○ | ○ | | 25 | ○ | ○ | ○ | ○ |
| 2 | ○ | ○ | ○ | ○ | | 8 | ○ | ○ | ○ | ○ | | 14 | ○ | ○ | ○ | ○ | | 20 | ○ | ○ | ○ | ○ | | 26 | ○ | ○ | ○ | ○ |
| 3 | ○ | ○ | ○ | ○ | | 9 | ○ | ○ | ○ | ○ | | 15 | ○ | ○ | ○ | ○ | | 21 | ○ | ○ | ○ | ○ | | 27 | ○ | ○ | ○ | ○ |
| 4 | ○ | ○ | ○ | ○ | | 10 | ○ | ○ | ○ | ○ | | 16 | ○ | ○ | ○ | ○ | | 22 | ○ | ○ | ○ | ○ | | 28 | ○ | ○ | ○ | ○ |
| 5 | ○ | ○ | ○ | ○ | | 11 | ○ | ○ | ○ | ○ | | 17 | ○ | ○ | ○ | ○ | | 23 | ○ | ○ | ○ | ○ | | 29 | ○ | ○ | ○ | ○ |
| 6 | ○ | ○ | ○ | ○ | | 12 | ○ | ○ | ○ | ○ | | 18 | ○ | ○ | ○ | ○ | | 24 | ○ | ○ | ○ | ○ | | 30 | ○ | ○ | ○ | ○ |

Only answers that are gridded will be scored. You will not receive credit for anything written in the boxes.

31   32   33   34   35

Only answers that are gridded will be scored. You will not receive credit for anything written in the boxes.

36   37   38

## ■ Section 5 (Optional)

**Important**: Use a No. 2 pencil. Write inside the borders.

You may use the space below to plan your essay, but be sure to write your essay on the lined pages. Work on this page will not be scored.

**Use this space to plan your essay.**

**START YOUR ESSAY HERE.**

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**STOP.**

# Reading Test

## 65 MINUTES, 52 QUESTIONS

**Turn to Section 1 of your answer sheet to answer the questions in this section.**

**Questions 1-10 are based on the following passage.**

This passage is adapted from A. A. Milne, *The Red House Mystery*. Originally published in 1922.

The "Temple" was a brick summer-house, in the gardens at the back of The Red House, about three hundred yards away. Here Mark, the house's master,
*Line* meditated sometimes before retiring to the "office" to
5 put his thoughts upon paper. The thoughts were not of any great value; moreover, they were given off at the dinner-table more often than they got on to paper, and got on to paper more often than they got into print. But that did not prevent the master of The Red
10 House from being a little pained when a visitor treated the Temple carelessly, as if it had been erected for the ordinary purposes of flirtation and smoking. There had been an occasion when two of his guests had been found playing hand-tennis in it.
15 Mark had said nothing at the time, save to ask with a little less than his usual point—whether they couldn't find anywhere else for their game, but the offenders were never asked to The Red House again.

Audrey, the parlour-maid, walked slowly up to
20 the Temple, looked in, and walked slowly back. The immediate business was to find the master, but all that walk was for nothing. Perhaps the master was upstairs in his room, and—listen! One of the men shooting rabbits. Mrs. Stevens, Audrey's aunt, was
25 partial to a nice rabbit, and onion sauce. How hot it was, yet she wouldn't say no to a cup of tea.

She came into the house. As she passed the housekeeper's room on her way to the hall, the door opened suddenly, and a rather frightened face looked
30 out.

"Hallo, Aud," said Elsie. She was one of the housemaids. "It's Audrey," she said, turning into the room.

"Come in, Audrey," called Mrs. Stevens.
35 "What's up?" said Audrey, looking in at the door.

"Oh, my dear, you gave me such a turn. Where have you been?"

"Up to the Temple."

"Did you hear anything?"
40 "Hear what?"

"Bangs and explosions and terrible things."

"Oh!" said Audrey, rather relieved. "One of the men shooting rabbits. Why, I said to myself as I came along, 'Auntie's partial to a nice rabbit,' I said,
45 and I shouldn't be surprised if—"

"Rabbits!" said her aunt scornfully. "It was inside the house, my girl."

"Straight it was," said Elsie. "I said to Mrs. Stevens—didn't I, Mrs. Stevens? —'That was in the
50 house,' I said."

Audrey looked at her aunt and then at Elsie.

"Do you think he had a revolver with him?" she said in a hushed voice.

"Who?" said Elsie excitedly.
55 "That brother of Mark's. From Australia. I said as soon as I set eyes on him, 'You're a bad lot, my man!'

**CONTINUE**

That's what I said, Elsie. Even before he spoke to me. Rude!" She turned to her aunt. "Well, I give you my word."

60      "If you remember, Audrey, I always said there was no use speaking with anyone from Australia." Mrs. Stevens lay back in her chair, breathing rather rapidly. "I wouldn't go out of this room now, not if you paid me a hundred thousand pounds."

65      "Oh, Mrs. Stevens!" said Elsie, who badly wanted five shillings for a new pair of shoes, "I wouldn't go as far as that, not myself, but—"

      "There!" cried Mrs. Stevens, sitting up with a start. They listened anxiously, the two girls
70 instinctively coming closer to the older woman's chair.

      A door was being shaken, kicked, rattled.
      "Listen!"
      Audrey and Elsie looked at each other with
75 frightened eyes.

---

**1**

Which choice best summarizes the passage?

A) The master of a house is sought, and his maids hear a startling sound.

B) Housemaids discuss their employer, and witness an exciting rabbit hunt.

C) A temple is described, and its master harshly criticizes his housemaids.

D) A gunshot is heard, and housemaids hide in a bedroom from their employer.

---

**2**

The passage is narrated by

A) a frightened bystander.

B) a meticulous analyst.

C) an omniscient observer.

D) a bored houseguest.

---

**3**

As used in line 4, "retiring" most nearly means

A) deteriorating.

B) retreating.

C) discharging.

D) surrendering.

---

**4**

As used in line 12, "ordinary" most nearly means

A) natural.

B) boring.

C) distasteful.

D) unremarkable.

---

**5**

What can be reasonably inferred when Mark does not ask certain guests back to The Red House in lines 15-18 is that the "Temple" is

A) off-limits to guests and visitors.

B) embarrassingly run-down and outdated.

C) home to Mark's wayward older brother.

D) viewed by Mark as a place for quiet.

---

**6**

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

A) Lines 1-3 ("The Temple … away")

B) Lines 9-13 ("But that … smoking")

C) Lines 13-14 ("There had … it")

D) Lines 20-22 ("The immediate … nothing")

CONTINUE

**7**

The rhetorical effect of Mrs. Stevens's description of the gunshots in line 41 is to

A) allude to Mrs. Stevens's extensive knowledge of guns.

B) elicit feelings of disgust toward the sport of hunting.

C) foreshadow Mrs. Stevens's participation in a crime.

D) signal a potential and previously unrecognized danger.

**8**

The narrator indicates that Audrey and Mrs. Stevens believe Mark's brother to be

A) impolite and noticeably suspicious.

B) wealthy and slightly arrogant.

C) charming and consistently hospitable.

D) imposing and exhaustingly overbearing.

**9**

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

A) Lines 27-30 ("As she … looked out")

B) Lines 42-43 ("One of … rabbits")

C) Lines 55-56 ("I said … man")

D) Lines 63-64 ("I wouldn't … pounds")

**10**

The author most likely includes Elsie's desire for a new pair of shoes in lines 65-66 to

A) suggest that Elsie is not focused on the current situation.

B) reveal that the housemaids do not have proper footwear.

C) emphasize Elsie's initiative in dangerous environments.

D) show that Elsie is only concerned about her physical appearance.

CONTINUE

**Questions 11-21 are based on the following passage and supplementary material.**

This passage is adapted from Matthew Savoca, "The oceans are full of plastic, but why do seabirds eat it?" ©2016 by Matthew Savoca.

Plastic debris can be found in oceans around the world. Scientists have estimated that there are over five trillion pieces of plastic, weighing more than a quarter of a million tons, floating at sea globally. Plastic does not biodegrade, but at sea large pieces of plastic break down into increasingly smaller fragments that are easy for animals to consume. Animals that mistake plastic for a meal may suffer from malnutrition, intestinal blockage, or slow poisoning from chemicals in or attached to the plastic.

Despite the pervasiveness and severity of this problem, scientists still do not fully understand why so many marine animals make this mistake. It has been commonly assumed, but rarely tested, that seabirds eat plastic debris because it looks like their natural prey. However, we propose a new explanation: for many imperiled species, marine plastic debris also produces an odor that the birds associate with food.

Perhaps the most severely impacted animals are tube-nosed seabirds, a group that includes albatrosses, shearwaters, and petrels. Many are at risk of extinction; according to the International Union for the Conservation of Nature, nearly half of the approximately 120 species of tube-nosed seabirds are either threatened, endangered, or critically endangered. As well, these birds are pelagic: they often remain at sea for years at a time, searching for food over hundreds or thousands of square kilometers of open ocean. Although there are many fish in the sea, areas that reliably contain food are very patchy—tube-nosed seabirds are searching for a needle in a haystack when they forage. They may be searching for fish, squid, krill, or other items, and it is possible that plastic debris visually resembles these prey. But we believe that tells only part of a more complex story.

In the early 1970s, Dr. Grubb Jr. showed that tube-nosed seabirds use their powerful sense of smell to find food effectively. Later, Dr. Nevitt and colleagues found that certain species of tube-nosed seabirds are attracted to dimethyl sulfide (DMS), a naturally scented sulfur compound. DMS comes from marine algae, which produce a related chemical called DMSP inside their cells. When those cells are damaged—for example, when algae die, or when marine grazers like krill eat it—DMSP breaks down, producing DMS. The smell of DMS alerts seabirds that food is nearby—not the algae, but the krill that are consuming the algae.

Dr. Nevitt and I wondered whether these seabirds were being tricked into consuming marine plastic debris because of the way it smelled. To test this idea, my co-authors and I created a database collecting every study we could find that recorded plastic ingestion by tube-nosed seabirds over the past 50 years. This research showed that species of birds that use DMS as a foraging cue eat plastic nearly six times as frequently as species that are not attracted to the smell of DMS while foraging.

To further test our theory, we needed to analyze how marine plastic debris smells. To do so, I took beads of the three most common types of floating plastic—polypropylene and low- and high-density polyethylene—and sewed them inside custom mesh bags, which we attached to two buoys off of California's central coast. We hypothesized that algae would coat the plastic at sea, a process known as biofouling, and produce DMS.

After the plastic had been immersed for about a month at sea, we retrieved it and brought it to a lab. There we used a gas chromatograph, specifically built to detect sulfur odors, to measure the chemical signature of our experimental marine debris. Sulfur compounds have a very distinct odor; to humans they smell like rotten eggs or decaying seaweed on the beach, but to some species of seabirds DMS smells delicious!

As proposed, every sample of plastic we collected was coated with algae and had substantial amounts of

DMS associated with it. We found levels of DMS that were higher than normal background concentrations in the environment, and well above

85 levels that tube-nosed seabirds can detect and use to find food. Our results provide the first evidence that, in addition to looking like food, plastic debris may also confuse seabirds that hunt by smell.

Plastic ingestion and DMS responsiveness in seabirds



Seabird species
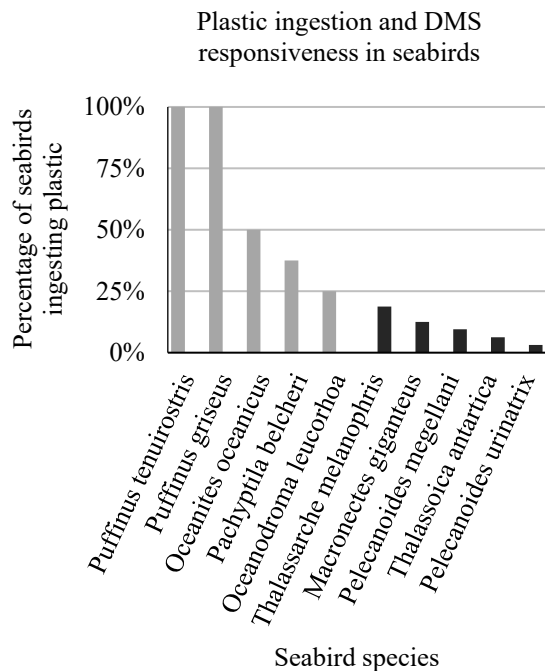
■ DMS-responsive species
■ Non-DMS-responsive species

The central claim of the passage is that

A) DMS is a harmful chemical that should be removed from our oceans.

B) Species that ingest plastic are in danger of becoming extinct.

C) The smell of plastic leads some seabird species to mistake it for food.

D) The production of DMS is crucial to the study of marine life.

Which of the following situations is most analogous to the problem presented in the passage?

A) A young boy ingests harmful pills that resemble candy.

B) A man makes changes to his diet to improve his health.

C) A woman eats strawberries despite knowing she is allergic to them.

D) A tourist is afraid to try a traditionally spicy local cuisine.

The passage most clearly implies that

A) plastic smells like DMS because of its artificial nature.

B) seabird prey ingest plastic in order to produce DMS.

C) the biofouling process leads to production of DMS.

D) all plastic smells like DMS until it is properly cleaned.

Which choice best supports the answer to the previous question?

A) Lines 5-8 ("Plastic does … consume")

B) Lines 34-37 ("They may … prey")

C) Lines 49-51 ("The smell … algae")

D) Lines 80-82 ("As proposed … it")

CONTINUE

**15**

The author mentions that tube-nosed seabirds are at risk of extinction primarily to

A)  share his strong concern for all endangered species.

B)  imply that animals usually go extinct because of a lack of food.

C)  show that seabirds are uniquely vulnerable to ingesting plastic waste.

D)  emphasize the seriousness of seabirds ingesting plastic.

**16**

The author makes use of which of the following to support his argument?

A)  Results from research he conducted

B)  Interviews with marine biologists

C)  Reports on where seabirds usually find their food

D)  Studies on the chemical composition of DMS

**17**

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

A)  Lines 14-17 ("It has … prey")

B)  Lines 39-41 ("In the … effectively")

C)  Lines 71-72 ("After the plastic...lab")

D)  Lines 86-88 ("Our results … smell")

**18**

As used in line 34, "forage" most nearly means

A)  chase.

B)  hunt.

C)  explore.

D)  ransack.

**19**

As used in line 59, "cue" most nearly means

A)  nod.

B)  signal.

C)  warning.

D)  suggestion.

**20**

Which choice is best supported by the graph?

A)  Seabird species all ingest roughly the same amount of plastic.

B)  Seabirds eventually learn to differentiate plastic from food.

C)  Seabirds become more responsive to DMS the more they encounter it.

D)  Seabird species that do not detect DMS consume less plastic.

**21**

Based on the passage and graph, which of the following is true of DMS?

A)  DMS is the only reason some seabird species mistakenly ingest plastic.

B)  Certain DMS-responsive seabird species are better at detecting DMS than others.

C)  Attraction to DMS makes seabirds significantly more likely to ingest plastic.

D)  DMS is only detectable by seabirds within a certain range of its source.

**CONTINUE**

**Questions 22-31 are based on the following passage.**

This passage is adapted from Ronald Reagan, "Address to the Nation on Tax Reform." Originally delivered in 1985.

In a moment I'll be sitting at that desk, signing the most sweeping overhaul of tax code in our nation's history. When I sign this bill into
Line  law, America will have the lowest marginal tax rates
5  and the most modern tax code among major industrialized nations—one that encourages risk-taking, innovation, and that old American spirit of enterprise. We'll be refueling the American growth economy with the kind of incentives that helped
10  create record new businesses and nearly 11.7 million jobs in just 46 months. Fair and simpler for most Americans, this is a tax code designed to take us into a future of technological invention and economic achievement, one that will keep America competitive
15  and growing into the 21st century.

But for all tax reform's economic benefits, I believe that history will record this moment as something more: as the return to the first principles. This country was founded on faith in the individual,
20  not groups or classes, but faith in the resources and bounty of each and every separate human soul. Our Founding Fathers designed a democratic form of government to enlist the individual's energies and fashioned a Bill of Rights to protect his or her
25  freedoms. And in so doing, they tapped a wellspring of hope and creativity that was to completely transform history.

But when our Founding Fathers designed this government—of, by, and for the people—they never
30  imagined what we've come to know as the "progressive income tax." As tax rates escalated, the tax code grew ever more tangled and complex, a haven for special interests and tax manipulators, but an impossible frustration for everybody else.
35  Blatantly unfair, our tax code became a source of bitterness and discouragement for the average taxpayer. It wasn't too much to call it "un-American."

In the last 20 years we've witnessed an expansion
40  and strengthening of many of our civil liberties, but our economic liberties have too often been neglected and even abused. We protect the freedom of expression of the author, as we should, but what of the freedom of expression of the entrepreneur, whose
45  pen and paper are capital and profits, whose book may be a new invention or small business? What of the creators of our economic life, whose contributions may not only delight the mind but improve the condition of man by feeding the poor
50  with new grains, bringing hope to the sick with new cures, or vanishing ignorance with wondrous new information technologies?

Meanwhile, the steeply progressive nature of the tax struck at the heart of the economic life of the
55  individual, punishing that special effort and extra hard work that has always been the driving force of our economy. As government's hunger for ever more revenues expanded, families saw taxes cut deeper and deeper into their paychecks; taxation fell most
60  cruelly on the poor, making a difficult climb up from poverty even harder. Throughout history, the oppressive hand of government has fallen most heavily on the economic life of these individuals. And more often than not, it is inflation and taxes that
65  have undermined livelihoods and constrained their freedoms. We should not forget that this nation of ours began in a revolt against oppressive taxation. Our Founding Fathers fought not only for our political rights but also to secure the economic
70  freedoms without which these political freedoms are no more than a shadow.

And what about fairness for families? It's in our families that America's most important work gets done: raising our next generation. But over the last
75  40 years, as inflation has shrunk the personal exemption, families with children have had to shoulder more and more of the tax burden. And what of America's promise of hope and opportunity, that with hard work even the poorest among us can gain
80  the security and happiness that is the due of all Americans? You can't put a price tag on the American Dream. That dream is the heart and soul of America; it's the promise that keeps our nation forever good and generous, a model of hope to the

**CONTINUE**

85  world. And that's why I'm certain that the bill I'm
    signing today is not only a historic overhaul of our
    tax code and a sweeping victory for fairness, it's also
    the best antipoverty bill, the best pro-family measure,
    and the best job-creation program ever to come out
90  of the Congress of the United States.

**22**

Which choice best describes what happens in the
passage?

A) Changes to the American tax code are
   introduced, and the failings of previous tax
   policies are explained.

B) American families are praised, and their role in
   the economy is outlined.

C) A specific tax code is described, and its proposed
   benefits are questioned.

D) America's Founding Fathers are scrutinized and
   compared to the current government.

**23**

Reagan characterizes the impact of the previous tax
policy on the American people as

A) repressive.

B) constructive.

C) inspiring.

D) trivial.

**24**

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

A) Lines 16-18 ("But for … principles")

B) Lines 21-25 ("Our Founding Fathers …
   freedoms")

C) Lines 57-61 ("As government's … harder")

D) Lines 77-81 ("And what … Americans")

**25**

What does Reagan most clearly imply about "the
individual" in American society?

A) Individuals are only interested in doing work
   that will benefit themselves.

B) Individual contributions to society are less
   impressive than those of families.

C) Individuals have historically made large
   contributions to America's economy.

D) Individuals' values are the ultimate
   exemplification of the American Dream.

**26**

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

A) Lines 8-11 ("We'll be … months")

B) Lines 53-57 ("Meanwhile … our economy")

C) Lines 61-63 ("Throughout history …
   individuals")

D) Line 82-83 ("That dream … America")

**27**

Reagan uses the phrase "tapped a wellspring"
(line 25) most likely to

A) allude to the great potential of individual
   Americans.

B) stress the importance of America's access to
   natural resources.

C) boast about America's creative superiority to
   other countries.

D) encourage American citizens to consider
   their societal contributions.

CONTINUE

**28**

Reagan most likely mentions America's Founding Fathers in order to

A) encourage his listeners to learn more about America's political history.

B) demonstrate America's past inability to elect a fair and just government.

C) emphasize America's long-held concern with families' exploitation of taxes.

D) contrast America's current tax code with the country's founding ideals.

**29**

As used in line 32, "tangled" most nearly means

A) disheveled.

B) knotted.

C) convoluted.

D) matted.

**30**

According to the passage, in comparison to American civil liberties, economic liberties have been

A) significantly broadened.

B) carefully examined.

C) aggressively debated.

D) recently ignored.

**31**

As used in line 77, "shoulder" most nearly means

A) champion.

B) bear.

C) heft.

D) nudge.

CONTINUE

**Questions 32-42 are based on the following passage and supplementary material.**

This passage is adapted from Lise Eliot, "Single-sex schools: Could they harm your child?" ©2016 by Lise Eliot. The passage summarizes some research on the effects of separating students by sex or gender. Though sometimes used interchangeably, sex generally refers to an individual's anatomy, while gender generally refers to how an individual identifies themselves.

Parents who choose single-sex schools do so for many reasons, but a major one is the belief that boys and girls learn differently. Single-sex schools also
Line claim to better tailor instruction to the gender of their
5 students. However, brain and behavioral research does not support such beliefs.

In-depth analysis of educational outcomes by Janet Hyde and colleagues at the University of Wisconsin has found scant evidence that single-sex
10 schooling leads to better academic achievement. Research suggests that single-sex schooling may actually be harmful to children—by failing to prepare them for gender-integrated workplaces, shared leadership, and equal partnership in families.

15 Since the Supreme Court's 1954 ruling in Brown v. The Board of Education, the evidence has been clear that integration works for breaking down racial gaps in education. The Supreme Court asserted that "separate educational facilities are inherently
20 unequal." The court's decision was based on social science evidence that found that separating and emphasizing differences between groups of people breeds stereotyping and discrimination.

Research by Rebecca Bigler at the University of
25 Texas and Lynn Liben at Penn State University has further corroborated this. Their work shows that children are especially susceptible to feelings of favoritism about members of their own group, and to prejudice against those in contrasting groups.
30 Similarly, in classroom-based research, Valerie Lee at the University of Michigan found the greatest expression of sexism in all-boys' schools. She found such behavior was not limited to males—all-girls' campuses could also foster stereotyping and a type of
35 "pernicious sexism," or dumbing-down of challenging material.

Other researchers have found that gender segregation inhibits opportunities for girls and boys to learn from each other. For example, Carol Martin
40 and her colleagues at Arizona State University (ASU) have found that boys and girls, who differ only modestly in infancy, grow further apart in their attitudes, abilities, and mutual understanding the more their environment distinguishes them from each
45 other. They called this the "gender segregation cycle."

Girls who grow up with brothers tend to be more interested in playing sports and building toys than girls without brothers. It has been found that boys develop better verbal ability and relational skills, and achieve
50 greater academic growth the more time and space they shared with girls. Single-sex education eliminates such co-learning opportunities and simultaneously increases discrimination and stereotyping. For example, the ASU research team found that among
55 middle school students, the more single-sex academic classes they attended each day, the stronger was the belief of students that boys are better in math and girls are better in language arts.

In spite of such findings, single-sex schools are
60 often promoted as effective at preparing girls for predominantly male STEM (science, technology, engineering, and mathematics) fields, such as computer science. But there is no evidence for this. In fact, research finds that women who attend single-
65 sex colleges or enroll in all-female science classes are not more likely to pursue and persist in STEM careers.

That's because the problem is not girls' academic ability or even their confidence in STEM subjects.
70 It's the culture of gender segregation: young women turn away from careers in engineering and computer science because they feel uncomfortable and unwelcome in overly male environments. On the flip side, it is also cultural separation that inhibits
75 many men from entering careers like nursing and teaching. In other words, gender segregation is the problem, not the solution, for getting more women to advance in STEM fields and for more men to enter the HEAL professions—health, education,
80 administration, and literacy.

CONTINUE

Distribution of Sexism
in Three Types of Schools



Type of sexism

■ All-boys' schools
■ All-girls' schools
■ Coeducational schools
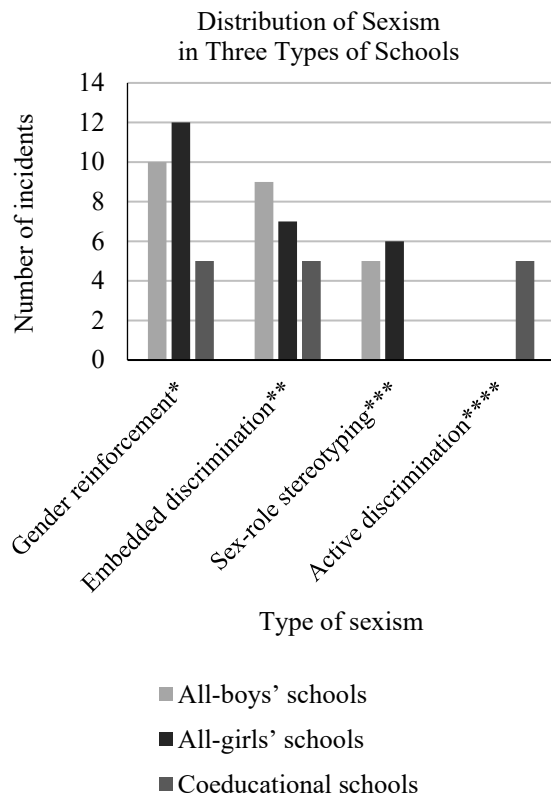
* the perpetuation of conventional behaviours associated with males and females.
** sexism portrayed in forms such as literary texts and visual displays.
*** the projection of social roles in which women are disadvantaged.
**** the denial of opportunities to females that are available to males.

**32**

Over the course of the passage, the focus shifts from

A) research on single-sex schools to gender segregation in the work force.

B) the Board of Education's legal cases in the 1950s to children's relationships with each other.

C) research at the University of Wisconsin to studies of preschool classrooms.

D) sexism in single-sex classrooms to the academic abilities of girls.

**33**

According to the passage, which of the following best describes the relationship between segregation and stereotypes?

A) Stereotypes do not develop when people are aware that they are segregated.

B) Stereotypes are the only negative consequence of segregation.

C) Segregation is implemented primarily to instill stereotypes in children.

D) Stereotypes develop more frequently in segregated environments.

**34**

Which choice provides the best evidence to the previous question?

A) Lines 51-53 ("Single-sex…stereotyping")

B) Lines 64-67 ("In fact…careers")

C) Lines 68-69 ("That's because…subjects")

D) Lines 73-76 ("On the…teaching")

CONTINUE

**35**

As used in line 9, "scant" most nearly means

A) subtle.

B) stingy.

C) little.

D) impaired.

**36**

The author references the Supreme Court's 1954 ruling in the Brown v. The Board of Education case (lines 15-16) primarily to

A) allude to the long history of evidence against segregation in education.

B) imply that the Supreme Court has a special interest in segregated schools.

C) convey that segregation in educational institutions by race is worse than by gender.

D) show that all stereotypes begin in early education classrooms.

**37**

As used in line 23, "breeds" most nearly means

A) selects.

B) instructs.

C) multiplies.

D) cultivates.

**38**

According to the Arizona State University's research

A) girls typically perform well in language arts and music despite their preference for math.

B) boys only internalize stereotypes when those stereotypes are reinforced by their male teachers.

C) children develop feelings of favoritism toward their own gender when separated.

D) children separated by gender are likely to believe each gender has different intellectual abilities.

**39**

The author's attitude toward gender segregation is best described as

A) optimistic.

B) critical.

C) curious.

D) fearful.

**40**

Which choice provides the best evidence to the previous question?

A) Lines 1-3 ("Parents who…differently")

B) Lines 11-14 ("Research suggests … families")

C) Lines 15-18 ("Since the … education")

D) Lines 46-48 (" Girls who…brothers")

CONTINUE

**41**

Which concept is best supported by the passage and by the information in the graph?

A)   Certain types of sexism have greater effects on students than others.

B)   The type of school a student attends determines the type of sexism they will exhibit.

C)   Sexism is more common in single-sex schools than in coeducational schools.

D)   Sexism is present in all types of schools because of its acceptance by teachers.

**42**

Data in the graph support which of the following statements about sexism in all-boys' schools?

A)   There are more sexist incidents in all-boys' schools overall than in all-girls' schools overall.

B)   There are more incidents of sex-role stereotyping than of active discrimination in all-boys' schools.

C)   There are fewer incidents of sex-role stereotyping in all-boys' schools than in coeducational schools.

D)   There are fewer sexist incidents in all-boys' schools than incidents of gender reinforcement in all-girls' schools.

**Questions 43-52 are based on the following passage.**

Passage 1 is adapted from Sunanda Creagh, "Moon mining a step closer with new lunar soil simulant." ©2013 by Sunanda Creagh. Passage 2 is adapted from Leonhard Bernald, "Lunar boom: we'll soon be mining the moon." ©2012 by Leonhard Bernald.

**Passage 1**

Australian researchers have developed a substance that looks and behaves like soil from the moon's surface and can be mixed with polymers to
*Line* create 'lunar concrete,' a finding that may help
5    advance plans to construct safe landing pads and mines on the moon.

Valuable, rare earth minerals—hydrogen, oxygen, platinum, and the non-radioactive nuclear fusion fuel Helium-3—are abundant on the moon.
10   NASA and other space agencies have shown interest in lunar mining, but lunar conditions are so different from Earthly conditions that new machinery may have to be invented to develop resources found there. Furthermore, the cost of transporting materials
15   made on Earth would be prohibitive, forcing scientists to come up with ways to build certain equipment using material only found on the moon's surface.

Recently, a research team led by Dr. Leonhard
20   Bernold at the University of New South Wales created a new lunar soil simulant that closely resembles samples brought back by the Apollo astronauts. Dr. Bernold says such a simulant is essential for testing lunar mining systems on Earth
25   and may help researchers develop ways to create a waterless concrete using lunar dust.

Dr. Bernold's lunar soil simulant is made up primarily of very fine basalt particles. "These particles are a byproduct of crushing basalt to make
30   concrete or asphalt, but they are too tiny to be useful and have to be thrown away," says Dr. Bernold. "On the moon, those small particles are abundant, having been created by small meteorites hitting the lunar surface at high speed over millions of years, thus
35   breaking larger stones down into tiny particles."

**CONTINUE**

Beyond providing a substance on which Earthly mining techniques can be tested, the simulant soil can also be mixed with polymers to create a lunar concrete, says Dr. Bernold. "So, for example, we can
40 find ways … to build a landing pad for rockets on the moon. When rockets are landing, they blow away fine soil and it's like a sandblaster blasting everything around," he said, adding that a proper landing pad on the moon would reduce the dangerous
45 sandblaster effect.

Professor Andrew Dempster at the University of New South Wales said a lunar soil simulant would also help researchers better understand the properties of moon dust. "The main value in this work has to do
50 with the soils on the moon being so different to the type of soil on the earth and the type of soil most mining machinery is dealing with," he says. "There's an environmental argument around it too—if you were to mine the moon, there's not going to be the
55 environmental impact on the local biosphere. It's a way of mining such that the mining process itself doesn't produce any negative environmental impact."

**Passage 2**

It is a common mistake made by engineers, including myself, to project terrestrial technology on
60 to the moon. Over the past 5,000 years, mining and construction methods have been optimized to fit key parameters on Earth. These include the presence of a gravitational acceleration of 9.8 meters per second squared; an atmosphere of roughly 79% nitrogen, 20%
65 oxygen and 1% other gases; water; soils containing clay, sand and gravel; and plants and timber. None of the above conditions are replicated on the moon, yet we are so caught up in Earthly thinking that it's extremely difficult to consider the synergistic effect
70 of these factors being changed at the same time.

Let's take gravitational acceleration that changes from 9.8 meters per second squared to 1.6 meters per second squared when we go from Earth to the moon. Gravity gives tires traction, which is required for
75 digging and as a counter-weight to keep equipment

from toppling over. In order to achieve the same amount of digging force or ballast weight on the moon, a mass six times that on Earth is needed. This creates a dilemma, as the cost of transporting
80 conventional equipment to the moon would be prohibitively expensive.

However, the key feature that eliminates Earthly loaders and trucks as viable options for lunar mining is their dependence on dust-producing wheels. Lunar
85 dust, as highlighted by the Apollo missions, is pesky and potentially hazardous for spacewalkers and robotic equipment. On the moon, the lack of an atmosphere, the low gravity, and the small soil particles allow the sun to energize the soil enough
90 that the particles stay levitated after being kicked up.

I believe that after many years of experimental work I have come up with a mining technology that fits the lunar condition: suction extraction with pneumatic transportation. This technology uses
95 airflow to transport material that is small enough to be sucked into a pipe and transported from a high-pressure entry to a low-pressure exit point. My concept would use the readily available silicates on the moon to manufacture glass pipes on site. There
100 is obviously much work still to be done, and many naysayers to convince, but lunar mining is not a pipe-dream without proponents.

**43**

Passage 1 indicates that using lunar dust to create concrete might make mining on the moon more feasible because

A) it is impossible to build concrete on the moon using Earthly methods.

B) using lunar dust would be much more affordable than using materials from Earth.

C) making concrete on the moon avoids damaging the delicate lunar environment.

D) concrete made out of Earthly materials is not strong enough to withstand rocket landings.

CONTINUE

**44**

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

A) Lines 11-14 ("lunar conditions… there")

B) Lines 14-18 ("Furthermore… surface")

C) Lines 39-41 ("So, for… moon")

D) Lines 53-55 ("if you… biosphere")

**45**

As used in line 25, "develop" most nearly means:

A) expand.

B) emerge.

C) invent.

D) spread.

**46**

Which choice best describes the structure of Passage 2?

A) It introduces challenges associated with an endeavor, then proposes one possible solution.

B) It summarizes a currently available technology, then predicts possible future developments.

C) It explains the history of a field of study, then analyzes its impact on present-day challenges.

D) It introduces a scientific concept, then applies that concept to a current problem.

**47**

What is the most likely reason the author of Passage 2 included lines 62-66?

A) To introduce experimental data that he will explain later in the passage

B) To emphasize the highly specific conditions under which mining technology developed

C) To highlight the degree to which Earthly technology has developed

D) To compare the harsh conditions of the moon with the comparably forgiving conditions of Earth

**48**

According to Passage 2, the main reason trucks would be impractical for lunar mining is the fact that they

A) depend on tires which produce dust.

B) would be very expensive to operate.

C) do not create enough digging force on the moon.

D) would be unbalanced and topple over easily.

**49**

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

A) Lines 60-62 ("Over… Earth")

B) Lines 74-76 ("Gravity… over")

C) Lines 76-78 ("In order… needed")

D) Lines 82-84 ("However… wheels")

**CONTINUE**

**50**

As used in line 93, "condition" most nearly means:

A) order.

B) environment.

C) position.

D) habitat.

**51**

Passage 2 differs from Passage 1 in that only Passage 2

A) considers the possible hazards associated with lunar sediment.

B) introduces a scientific development that may assist with lunar mining.

C) mentions the possibility of using on-site lunar materials to build equipment.

D) discusses the difficulties of using Earthly technology in a low-gravity environment.

**52**

On which of the following points would the authors of both passages most likely agree?

A) The value of minerals on the moon is not significant enough to make lunar mining worthwhile.

B) Lunar mining would prove to be much more profitable than mining on Earth.

C) Scientists need to develop new technologies and methods to make lunar mining practical.

D) The hazard posed by lunar dust is the greatest obstacle to viable lunar mining.

# STOP

**If you complete this section before the end of your allotted time, you may check your work on this section only. Do NOT use the time to work on another section.**

# Writing and Language Test

## 35 MINUTES, 44 QUESTIONS

**Turn to Section 2 of your answer sheet to answer the questions in this section.**

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**DIRECTIONS**

Every passage comes with a set of questions. Some questions will ask you to consider how the writer might revise the passage to improve the expression of ideas. Other questions will ask you to consider correcting potential errors in sentence structure, usage, or punctuation. There may be one or more graphics that you will need to consult as you revise and edit the passage.

Some questions will refer to a portion of the passage that has been underlined. Other questions will refer to a particular location in a passage or ask that you consider the passage in full.

After you read the passage, select the answers to questions that most effectively improve the passage's writing quality or that adjust the passage to follow the conventions of standard written English. Many questions give you the option to select "NO CHANGE." Select that option in cases where you think the relevant part of the passage should remain as it currently is.

---

**Questions 1-11 are based on the following passage.**

**Know Where You Stand: The Global Positioning System**

The GPS system is a network of advanced satellites that send information down from space to millions of GPS receivers all over the world—including the ones in our smartphones. Millions of people **1** <u>use</u> the GPS system every day, and it is an impressively complex technical achievement. **2** <u>However the concept behind it is simple,</u> to know where you are, you only need to know how far you are from other things.

**1**

A) NO CHANGE
B) is using
C) uses
D) has used

**2**

A) NO CHANGE
B) However, the concept behind it is simple:
C) However, the concept behind it, is simple:
D) However, the concept behind it is simple,

CONTINUE

[1] Each GPS satellite contains a computer, a radio transmitter, and an extremely **3** particular clock. [2] Each satellite contains and periodically broadcasts this digital almanac. [3] Each satellite also broadcasts tracking signals that announce the exact time of the broadcast. [4] The satellites are in predictable orbits, and their exact positions at different times are encoded in a digital "almanac." **4**

**3**

A) NO CHANGE
B) methodical
C) right
D) precise

**4**

For the sake of the logic and cohesion of this paragraph, sentence 4 should be

A) placed where it is now.
B) placed after sentence 1.
C) placed after sentence 2.
D) DELETED from the paragraph.

CONTINUE

Each receiver contains an antenna, a clock, and a computer. The antenna picks up signals from GPS satellites. These signals travel at the speed of light. When the antenna receives **5** a signal, the receiver compares the time the signal was sent to the time on its own clock to calculate the signal's travel time. **6** It is important for the signal to be very fast, because the satellites are very far away. The computer checks the almanac to see where the satellite was when it sent the signal, so it also knows the point of origin. When the receiver knows its distance from enough other points, it can calculate **7** its own position.

**5**

A) NO CHANGE

B) a signal, while the receiver

C) a signal, and the receiver

D) a signal. The receiver

**6**

Which choice best develops the explanation of how a receiver works?

A) NO CHANGE

B) Because radio waves move at the speed of light, the computer must be very fast.

C) The satellites travel about 3.8 kilometers per second, which is less than 13 millionths of the speed of light.

D) The computer multiplies the signal's travel time by the speed of light to find the distance the signal traveled.

**7**

A) NO CHANGE

B) it's own

C) it's self's

D) itselfs

CONTINUE

You can picture this calculation in two dimensions. If you receive a signal that traveled for 74.4 milliseconds, then you can determine that **8** satellite A is 22,300 kilometers away from satellite B, and you can draw a circle with a radius of the distance. You're somewhere on the edge of that circle. With a second satellite's **9** signal, and you can draw two circles, the points where they touch are your possible positions. With a third satellite's signal, you can draw a third circle. The point where all three touch is your position. The idea is the same in three dimensions, but you need four satellites.

One Satellite Signal    Two Satellite Signals
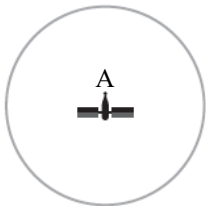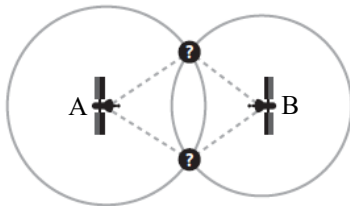
Three Satellite Signals
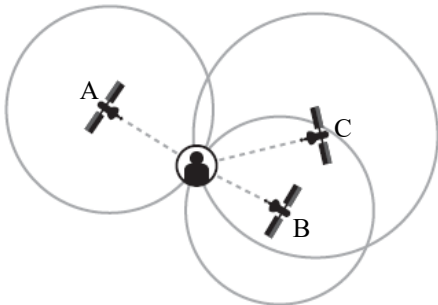
| Signal Data | Satellite A | Satellite B | Satellite C |
|---|---|---|---|
| Travel Time (milliseconds) | 74.4 | 67.4 | 88.4 |
| Travel Distance (kilometers) | 22,300 | 20,204 | 26,502 km |

---

**8**

Which choice most accurately and effectively represents the information in the graphic and the passage?

A) NO CHANGE

B) the signal traveled about 22,300 miles,

C) satellite A is 22,300 miles from satellite B,

D) the signal traveled 22,300 kilometers,

**9**

A) NO CHANGE

B) signal, you can draw two circles. The points

C) signal. You can draw two circles, and the points

D) signal you can draw two circles and the points

CONTINUE

In practice, the calculation is complicated by other factors. **10** Nevertheless, if tall buildings, trees, or other obstacles briefly block signals as you walk or drive past, you may need more satellites to maintain a steady fix. On the other hand, if you can determine part of your location with another device, then you can **11** put your faith in fewer satellites. The principle, though, remains surprisingly simple.

**10**

A)  NO CHANGE
B)  Similarly,
C)  For example,
D)  In summary,

**11**

A)  NO CHANGE
B)  believe in
C)  bargain for
D)  rely on

CONTINUE

**Questions 12-22 are based on the following passage.**

**Let's Talk it Over: The Power of Plato's Dialogues**

Most thinkers today, from scientists to philosophers, communicate their ideas through essays or books written in **12** there own voices, defending claims that they themselves believe. There is, however, a different format that used to be very popular: the dialogue. **13** Works in this format show characters discussing ideas together. Although the dialogue is rarely used today, it can have a profound impact on its readers. Nowhere is this clearer than in the works of the ancient Greek philosopher Plato.

**12**

A) NO CHANGE
B) they're
C) their
D) his or her

**13**

The writer is considering deleting the underlined sentence. Should the writer do this?

A) No, because it defines an important term introduced in the previous sentence.
B) No, because scientists and philosophers are examples of characters.
C) Yes, because plays also fit this description.
D) Yes, because the dialogue format will not be introduced until the next paragraph.

CONTINUE

While earlier Greek philosophers wrote essays or argumentative poems, Plato **14** <u>exclusively</u> wrote dialogues. These works usually show Plato's teacher, Socrates, arguing with other famous Athenians. They range from intense one-on-one conversations like *Euthyphro* to dramatic and hilarious group scenes like *Protagoras*. **15** The dialogue form allowed Plato to explore characters as well as **16** <u>arguments, he was keenly aware</u> that people's personalities have a huge impact on the way they talk and think.

**14**

A) NO CHANGE
B) expensively
C) snobbishly
D) privately

**15**

At this point, the author is considering adding the following information:

> Plato's student Aristotle also wrote dialogues but, unfortunately, all of these works are lost.

Should the writer make this addition here?

A) No, because Aristotle disagreed with Plato on many important philosophical points.
B) No, because it interrupts this paragraph's focus on Plato's dialogues.
C) Yes, because it aligns with this paragraph's focus on historical thinkers.
D) Yes, because Plato's dialogues inspired Aristotle's.

**16**

A) NO CHANGE
B) arguments; he was keenly aware
C) arguments he was keenly aware
D) arguments, he was: keenly aware

CONTINUE

[17] Thinking of themselves as experts, most of Socrates's conversation partners are in some field. Euthyphro, for instance, claims to be an expert on religion. Protagoras claims to be such a great teacher that he can make his students better people. Under Socrates's questioning, [18] therefore, these so-called experts fall apart. Euthyphro can't explain what makes something holy, and he becomes so frustrated that he claims to have an urgent appointment and runs away. Protagoras ends up claiming that being a good person isn't a matter of knowledge—but if it's not knowledge, it's not teachable, which means his students are paying [19] them for nothing.

**17**

A) NO CHANGE
B) As they talk to Socrates, many experts consider themselves to be in some field.
C) Experts in some field, talking to Socrates, they generally think of themselves.
D) Socrates's conversation partners usually think of themselves as experts in some field.

**18**

A) NO CHANGE
B) indeed
C) additionally
D) however

**19**

A) NO CHANGE
B) him
C) himself
D) themselves

CONTINUE

Notably, Plato himself never appears as a speaker in the dialogues. Some readers believe that the Socrates character is a stand-in for Plato, but Socrates rarely sounds like an authority. Often, he makes bad arguments, ends conversations **20** as confused as everyone else; and claims that he only has questions, not answers. So how are we supposed to work out what Plato thought?

**21** The short answer is that we're not. Plato understood that we can't learn important truths just by reading them. **22** Last but not least, Plato wrote his insights down in an essay and we believed them just because "Plato said so," we wouldn't really learn anything. That's why his dialogues push us to weigh the arguments made by all the different characters and work toward the truth ourselves. Rather than give us final answers, his books raise questions, suggest possible answers, and show us what conversations about these issues should look like. These dialogues teach us the process that we must use to reach real understanding—a deeper and more valuable lesson than any information an essay could contain.

---

**20**

A) NO CHANGE

B) as confused, as everyone else, and claims

C) as confused as everyone else, and claims

D) as confused as everyone else, and, claims

**21**

Which choice provides the best transition between this paragraph and the preceding paragraph?

A) NO CHANGE

B) Plato refers more than once to the phrase "Know yourself," inscribed on the temple of Apollo at Delphi.

C) If he were still alive today, Plato would tell us himself.

D) It's not even clear what Socrates himself believed.

**22**

A) NO CHANGE

B) Plato

C) If Plato

D) Consequently, Plato

CONTINUE

**Questions 23-33 are based on the following passage.**

**Lawyers of the Land**

If television and the movies are to be believed, all lawyers spend their days litigating world-shaking court cases, fighting for justice in beautifully appointed courtrooms where emotions run high and objections are overruled, finding the crucial piece of evidence hidden in piles of paper, or **23** they remember exactly which leather-bound book holds the definitive case law that will help them win the trial. While most lawyers conduct their business in less glamorous ways than this, the work they do is still very important. For example, real estate attorneys make it possible for people and businesses to buy and sell property without running afoul of the **24** composite rules that govern those transactions.

**23**

A) NO CHANGE
B) remembering
C) they remembered
D) they remembers

**24**

A) NO CHANGE
B) busy
C) complex
D) unfathomable

CONTINUE

The first step to becoming a real estate attorney is a bachelor's degree. **25** After completing a bachelor's degree, a student must enter law school to pursue a J.D., and she may concentrate in real estate law or take elective courses in **26** environmental law, tax issues or; land use regulations. After completing law school and earning a J.D., she must still pass her state's bar exam before she can practice law. Once a lawyer has passed the bar, she may choose to "hang out her shingle" as a sole practitioner, join a private firm, or work in-house for a single corporation.

**27** No matter what kind of gig she gets, a real estate lawyer's day-to-day work falls into three main categories: contracts, title searches, and closings. All real estate deals involve drafting and negotiating contracts; people who enjoy both detail-oriented work and the give and take of negotiations are well-suited to this.

**25**

At this point the writer is considering adding the following sentence

> While any bachelor's degree will qualify a student for law school, majoring in economics or business provides a good foundation for the field.

Should the writer make this addition here?

A) Yes, because it explains why a bachelor's degree is required.

B) Yes, because it provides relevant details about preparing for the career.

C) No, because the information relates to suggestions rather than requirements.

D) No, because it interrupts the flow of information about how to prepare for the career.

**26**

A) NO CHANGE

B) environmental law, tax issues or, land use regulations

C) environmental law, tax issues, or land use regulations

D) environmental law; tax issues or land use regulations

**27**

A) NO CHANGE

B) Without regard to the nature of her employer,

C) Wherever she works,

D) Regardless of the job,

CONTINUE

**28** Some lawyers specialize in title searches. Which involve a great deal of research. **29** Though it doesn't happen often, sometimes a title search will turn up a mystery. Once the title search is complete, the lawyers draft deeds that legally convey property. Finally, real estate lawyers oversee the "closing" of the deal, **30** providing detailed final accountings of the transaction, preparing all the documents, and making sure those documents are filed with the right government agencies.

**28**

A) NO CHANGE

B) Some lawyers specialize in title searches, which involve a great deal of research.

C) Some lawyers specialize in title searches which involve: a great deal of research.

D) Some lawyers specialize in title searches; which involve a great deal of research.

**29**

At this point, the writer wants to provide additional relevant details about the kinds of work that real estate lawyers perform. Which choice best accomplishes this goal?

A) NO CHANGE

B) Title search lawyers review records to make sure that all transfers of a piece of property have been documented and that there have been no fraudulent transfers.

C) If an aspiring lawyer doesn't enjoy doing research, the chances are good that real estate law isn't the best career for them.

D) Some of the historical records that title search lawyers spend their time reading through can date as far back as the 1600s.

**30**

A) NO CHANGE

B) providing detailed final accountings of the transaction and prepare all the documents, and making sure

C) providing detailed final accountings of the transaction; preparing all the documents; and making sure

D) providing detailed final accountings of the transaction, and they prepare all the documents, and making sure

CONTINUE

[1] **31** Moreover, that's not all real estate attorneys can do. [2] Some real estate attorneys even specialize in international real estate, a field that combines law and diplomacy and requires regular international travel. [3] There are many specialties open to real estate lawyers, including commercial realty, construction law, historic preservation law, real estate litigation, and affordable housing law. [4] Real estate law may not be as glamorous as a courtroom drama, but it **32** offers diverse, interesting, and often lucrative opportunities. **33**

**31**

A) NO CHANGE
B) However,
C) In addition,
D) Insofar as that's so,

**32**

A) NO CHANGE
B) offered
C) has offered
D) is offering

**33**

For the sake of cohesion of the paragraph, Sentence 2 should be placed

A) where it is now.
B) before Sentence 1.
C) after Sentence 3.
D) after Sentence 4.

CONTINUE

**Questions 34-44 are based on the following passage and supplemental material.**

**Learning to Read in Maya script**

"Sun Woman, Woman Who Inscribes the Sky, Lady Jaguar; she is the one who inscribed this." So reads the inscription on the rim of an ancient Maya bowl, given by a mother to her son many centuries ago.

The ancient Maya, whose territory covered the Yucatan Peninsula and extended from Southern Mexico to Central America, **34** developed the writing system known as the Maya script writing system in the third century BCE. The Maya script remained in **35** everlasting use until the Spanish conquest in the 16th and 17th centuries. The Spanish burned the Maya's books, defaced many of their inscriptions, and suppressed the teaching of their script. Today, even though about six million people speak Mayan languages, they mostly write in them using the Latin script.

Unlike the scripts used to write in languages like English, Greek, or Vietnamese, the Maya script is not an alphabet. In other words, its characters don't represent basic sounds. **36** Other scripts include Cyrillic, Ge'ez, and Hangul. Instead, the Maya script uses two kinds of characters: logograms and syllabograms.

**34**

A) NO CHANGE
B) developed a novel new
C) wrote a new script as a
D) developed a new

**35**

A) NO CHANGE
B) eternal
C) consecutive
D) continuous

**36**

Which of the following choices best supports the idea that the Maya script is different from many other world scripts?

A) NO CHANGE
B) The letter "w," for instance, represents a basic sound that linguists call a "voiced labio-velar approximant."
C) It is also unlike abjad scripts, which represent consonants, or abugida scripts, which represent consonants and vowels together.
D) The longest alphabet, the Khmer alphabet, has 74 letters.

CONTINUE

[37] While a logogram stands for an entire word, while a syllabogram stands for a syllable. In this respect, the Maya script is [38] similar as Chinese and Japanese scripts. To spell a word like "pakal," which means "shield," a Maya writer could either use the "pakal" logogram or spell the word out with the signs for "pa," "ka," and "l."

Maya wrote on a variety of media: stone monuments, earthenware, jewelry, walls, and books made of bark fiber paper. The Spanish destroyed so many Maya books in the 16th and 17th centuries that just four pre-colonial paper books survive today. However, scholars reason that the ease of producing and using bark fiber paper and its high quality [39] would have made it the most popular medium for Maya writing before European contact. [40] However, Maya paper may have been more durable and easier to use than the papyrus favored by Mediterranean [41] civilizations'.

**37**

A) NO CHANGE
B) While a logogram stands for an entire word, a syllabogram stands for a syllable.
C) While a logogram stands for an entire word, as a syllabogram stands for a syllable.
D) A logogram stands for an entire word, a syllabogram stands for a syllable.

**38**

A) NO CHANGE
B) similarly as
C) similar to
D) similarly to

**39**

A) NO CHANGE
B) will be making it
C) is making it
D) will make it

**40**

A) NO CHANGE
B) Indeed,
C) Nevertheless,
D) Despite this,

**41**

A) NO CHANGE
B) civilization's.
C) civilizations.
D) of the civilization.

CONTINUE

[42] Some world scripts, like the Mediterranean Linear A, are completely undeciphered. This delay was partly because of the skepticism of an influential old guard of scholars. Once younger scholars began to discard old assumptions and work closely with modern Mayan speakers, the work went faster. About 90 percent of texts in the Maya script are now deciphered, and modern Maya scribes are teaching the script to the next generation.

Today, the descendants of Sun Woman and her fellow Maya are reclaiming their written language. [43] Instead, in a classroom in Guatemala, Maya students are learning how to read and write the [44] script under the guidance of their teacher, they press the once-suppressed script of their ancestors into fresh clay.

**42**

Which of the following choices effectively conveys the main topic of the paragraph?

A) NO CHANGE

B) The archaeologist J. Eric S. Thompson was convinced that the Maya script did not have syllabic characters.

C) Archaeologists have only decoded the Maya script within the last thirty years.

D) The University of Texas, Austin, has been an important center for the study of Maya writing.

**43**

A) NO CHANGE

B) On the other hand,

C) However,

D) DELETE the underlined portion and capitalize the following word.

**44**

A) NO CHANGE

B) script, under

C) script. Under:

D) script. Under

# STOP

**If you complete this section before the end of your allotted time, you may check your work on this section only. Do NOT use the time to work on another section.**

# Math Test – No Calculator

## 25 MINUTES, 20 QUESTIONS

**Turn to Section 3 of your answer sheet to answer the questions in this section.**

---

**DIRECTIONS**

Questions **1-15** ask you to solve a problem, select the best answer among four choices, and fill in the corresponding circle on your answer sheet. Questions **16-20** ask you to solve a problem and enter your answer in a grid provided on your answer sheet. There are detailed instructions on entering answers into the grid before question 16. You may use your test booklet for scratch work.

**NOTES**

1. You **may not** use a calculator.
2. Variables and expressions represent real numbers unless stated otherwise.
3. Figures are drawn to scale unless stated otherwise.
4. Figures lie in a plane unless stated otherwise.
5. The domain of a function $f$ is defined as the set of all real numbers $x$ for which $f(x)$ is also a real number, unless stated otherwise.

**REFERENCE**



There are 360° in a circle.

The sum of the angles in a triangle is 180°.

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

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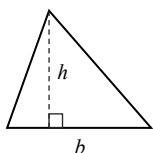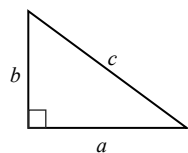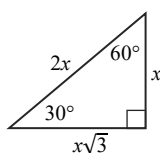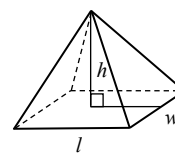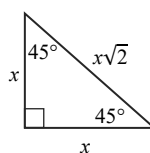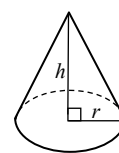
## 1

If $12a - 4 = 3$, what is the value of $a$?

A) $-\dfrac{1}{12}$

B) $\dfrac{1}{4}$

C) $\dfrac{1}{3}$

D) $\dfrac{7}{12}$

## 2

The slope of line $B$ is one-third of the slope of line $A$. If the equation of line $B$ is $y = 3x + 9$, which of the following is a possible equation of line $A$?

A) $y = x + 9$

B) $y = x + 3$

C) $y = 3x + 27$

D) $y = 9x + 9$

## 3

If $\dfrac{4p}{q} = 5$, what is the value of $\dfrac{p}{q}$?

A) $\dfrac{1}{5}$

B) $\dfrac{4}{5}$

C) $\dfrac{5}{4}$

D) $5$

## 4

If $f(x) = 2x^4 - 3x^2 + x - 5$ and $g(x) = -x^3 - x^2 - 4x + 2$, what is $f(x) + g(x)$?

A) $2x^4 - x^3 - 4x^2 - 3x - 3$

B) $2x^4 - 4x^3 - x^2 - 3x - 3$

C) $2x^4 + x^3 - 2x^2 + 5 - 7$

D) $-2x^7 + 4x^4 - 3x^2 - 3$

## 5

$$x(2x - 3)(4 + x)(5 - 6x) = 0$$

What is the product of all the solutions to the above equation?

A) $-5$

B) $0$

C) $5$

D) $10$

## 6

The function $f(x)$ is defined as $f(x) = x + 4$. Which of the following is true about $f(2x)$?

A) The $y$-intercept is greater than that of $f(x)$.

B) The $y$-intercept is less than that of $f(x)$.

C) The slope is greater than that of $f(x)$.

D) The slope is less than that of $f(x)$.

**CONTINUE**

**7**

$$y = 4x + 9$$
$$y = 2x + 3$$

Which ordered pair $(x, y)$ satisfies the system of equations above?

A) $(2, 6)$

B) $(-3, -3)$

C) $(0, 3)$

D) $\left(-\dfrac{3}{2}, 3\right)$

**8**

$$\dfrac{2}{x+1} + \dfrac{3}{x-2}$$

Which of the following is equivalent to the expression above?

A) $\dfrac{5}{2x-1}$

B) $\dfrac{5x-1}{2x-1}$

C) $\dfrac{5}{x^2 - x - 2}$

D) $\dfrac{5x-1}{x^2 - x - 2}$

**9**



Distance along wall A (meters) vs. Distance along wall B (meters)
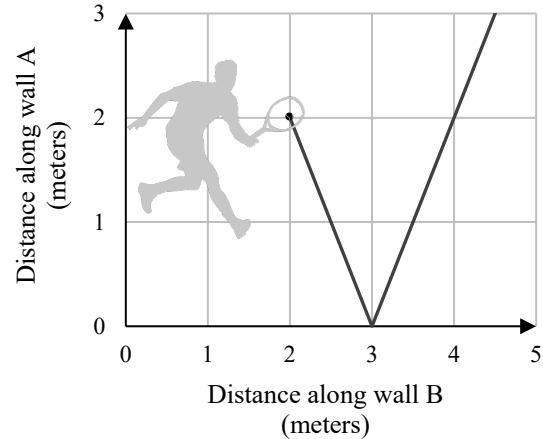
A tennis player stands facing wall A and wall B, as shown in the graph above. He stands 2 meters away from both walls and hits a ball toward wall B. The ball strikes wall B 3 meters from the corner of the two walls, as shown above. If A represents the distance in meters along wall A from the corner of the walls, and B represents the distance in meters along wall B from the corner of the walls, which of the following equations most closely models the position of the tennis ball after it has been hit by the player?

A) $A = |B + 3|$

B) $A = |B - 3|$

C) $A = |2B + 6|$

D) $A = |2B - 6|$

CONTINUE

**10**

Suda is studying the population of an ancient city in 200 BCE. Based on archeological remains, there were at least 1,000 men and 3,000 women living in the city at the time. Contemporary sources mention that twice as many women lived in the city as men, and that the total population was less than the population of the neighboring city, which is known to have had 15,000 inhabitants at the time. Which of the following systems of equations and inequalities represents the conditions described, if $w$ represents the number of women living in the city and $m$ represents the number of men living in the city?

A)  $m \geq 1,000$
    $w \geq 3,000$
    $w = 2m$
    $w + m < 15,000$

B)  $m \leq 1,000$
    $w \leq 3,000$
    $w = 2m$
    $w + m < 15,000$

C)  $m \leq 1,000$
    $w \leq 3,000$
    $2w = m$
    $w + m > 15,000$

D)  $m \geq 1,000$
    $w \geq 3,000$
    $2w = m$
    $w + m < 15,000$

**11**

$$\frac{10}{4 - 2i}$$

Which of the following is equivalent to the expression above? (Note: $i = \sqrt{-1}$.)

A)  $2 + i$

B)  $i - 2$

C)  $4 + 2i$

D)  $2i - 4$

**12**
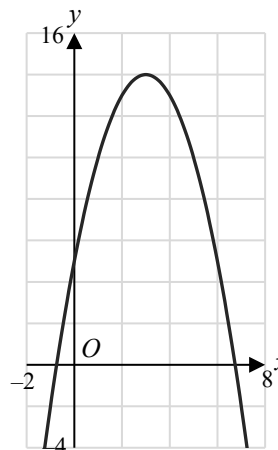


Which of the following equations could be represented by the graph above?

A)  $y = 4x^2 - 4x + 5$

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

C)  $y = -x^2 + 6x + 5$

D)  $y = -4x^2 + 2x + 5$

CONTINUE

**13**

$$m' = \frac{m}{\sqrt{1 - \dfrac{v^2}{c^2}}}$$

The equation above gives the relativistic mass of an object, $m'$, in terms of its resting mass, $m$, its velocity, $v$, and the speed of light, $c$. Assuming $m$, $v$, and $c$ are positive, which of the following expressions is equivalent to $v$?

A)  $c^2 \sqrt{1 - \dfrac{m^2}{m'^2}}$

B)  $c \sqrt{1 - \dfrac{m^2}{m'^2}}$

C)  $\sqrt{c - \dfrac{m^2}{m'^2}}$

D)  $c\left(1 - \dfrac{m}{m'}\right)$

**14**

In a right triangle with two acute angles measuring $a°$ and $b°$, $\sin(k° - a°) = \cos(k° - b°)$, where $0° \leq k° \leq 90°$. What is the value of $k - a - b$?

A)  −60

B)  −30

C)  0

D)  30

**15**

A baseball and a football are thrown at the same time. The baseball's height, in meters, is given by the expression $b(t) = -2t^2 + 10t + 1$ and the football's height, also in meters, is given by the expression $f(t) = -t^2 + 6t + 1$, where $t$ is the number of seconds after the balls are thrown. During the first 4 seconds, which of the following expressions describes the vertical distance that the baseball is above the football, in meters?

A)  $4t$

B)  $t^2 - 4t$

C)  $-t^2 + 4t$

D)  $-t^2 + 4t + 2$

CONTINUE

## DIRECTIONS

Questions **16-20** ask you to solve a problem and enter your answer in the grid provided on your answer sheet. When completing grid-in questions:

1. You are required to bubble in the circles for your answers. It is recommended, but not required, that you also write your answer in the boxes above the columns of circles. Points will be awarded based only on whether the circles are filled in correctly.

2. Fill in only one circle in a column.

3. You can start your answer in any column as long as you can fit in the whole answer.

4. For questions 16-20, no answers will be negative numbers.

5. **Mixed numbers**, such as $4\frac{2}{5}$, must be gridded as decimals or improper fractions, such as 4.4 or as 22/5. "42/5" will be read as "forty-two over five," not as "four and two-fifths."

6. If your answer is a **decimal** with more digits than will fit on the grid, you may round it or cut it off, but you must fill the entire grid.

7. If there are **multiple correct solutions** to a problem, all of them will be considered correct. Enter only **one** on the grid.

**16**

$$s = 180(n - 2)$$

The sum of the measures of interior angles in a polygon, $s$, in degrees, is related to the number of angles in the polygon, $n$, as described by the formula above. What is the sum of the measures of the interior angles, in degrees, of a 7-sided polygon?

**17**

If $x = \sqrt[3]{a}$ and $3a = 24$, what is the value of $x$ ?

**18**

A laser technician sets up a laser at $(a, 2)$ and a target at $(3, a)$ in the $xy$-plane. If the resulting laser beam is perpendicular to another beam modeled by the line $2x - 3y = -8$, what is the value of $a$?

**19**
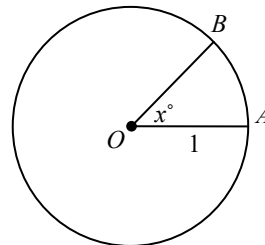


If the length of minor arc $AB$ is $\dfrac{\pi}{3}$, and $O$ is the center of the circle, what is the value of $x$?

**20**

If $a + b = 7$ and $a^2 + b^2 = 31$, what is the value of $ab$?

# STOP

**If you complete this section before the end of your allotted time, you may check your work on this section only. Do NOT use the time to work on another section.**

# Math Test – Calculator

## 55 MINUTES, 38 QUESTIONS

**Turn to Section 4 of your answer sheet to answer the questions in this section.**

### DIRECTIONS

Questions **1-30** ask you to solve a problem, select the best answer among four choices, and fill in the corresponding circle on your answer sheet. Questions **31-38** ask you to solve a problem and enter your answer in a grid provided on your answer sheet. There are detailed instructions on entering answers into the grid before question 31. You may use your test booklet for scratch work.

### NOTES

1. You **may** use a calculator.
2. Variables and expressions represent real numbers unless stated otherwise.
3. Figures are drawn to scale unless stated otherwise.
4. Figures lie in a plane unless stated otherwise.
5. The domain of a function $f$ is defined as the set of all real numbers $x$ for which $f(x)$ is also a real number, unless stated otherwise.

### REFERENCE
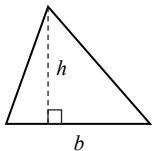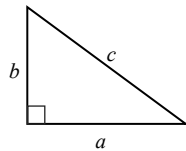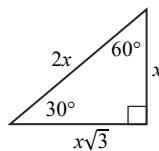


$$A = \frac{1}{2}bh \qquad a^2 + b^2 = c^2 \qquad \text{Special Triangles} \qquad V = \frac{1}{3}lwh \qquad V = \frac{1}{3}\pi r^2 h$$
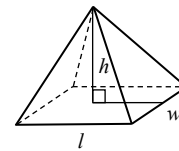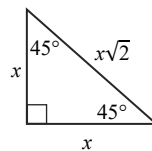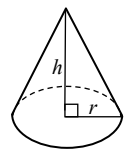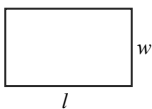
$$A = lw \qquad V = lwh \qquad V = \pi r^2 h \qquad A = \pi r^2 \qquad V = \frac{4}{3}\pi r^3$$
$$C = 2\pi r$$
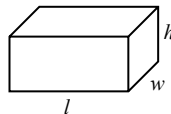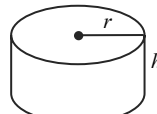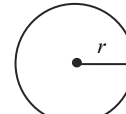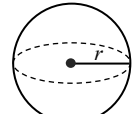
There are 360° in a circle.

The sum of the angles in a triangle is 180°.

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

**1**

Growth of a Bean Sprout
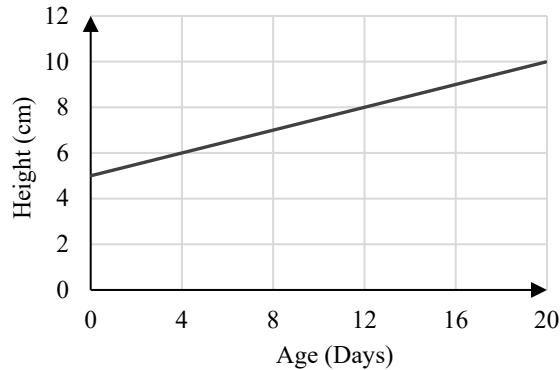


Anastasia starts growing a bean sprout for a school project. If her plant's growth can be modeled according to the graph above, what can she conclude?

A) Every day, the bean sprout doubles in height.

B) It will take 20 days for the bean sprout to reach maturity.

C) After 5 days, the plant will be one centimeter taller.

D) After 4 days, the plant will be one centimeter taller.

**2**

Which of the following equations represents a line that is parallel to $y = 2x - 7$?

A) $x - y = 7$

B) $2x + y = 7$

C) $-x + 2y = 14$

D) $2x - y = 4$

**3**

What is the $y$-intercept of the line $3y + 5x - 3 = 0$?

A) $-3$

B) $-1$

C) $1$

D) $3$

**4**

If half of the 4,600 spoken languages in the world have writing systems, and 23 of those use Arabic script, what percentage of writing systems use Arabic script?

A) 0.1

B) 0.5

C) 1.0

D) 2.0

**5**

A latte currently costs $3.50 at a local coffee shop. If the price of a latte increases by 10% each year, which of the following expressions represents the price in dollars, $P$, of a latte after $t$ years have passed?

A) $P = 3.50 \times 1.10^t$

B) $P = 3.50 \times 0.10^t$

C) $P = 1.10 \times 3.50^t$

D) $P = 0.10 \times 3.50^t$

CONTINUE

**6**

| | Age Ranges of Residents (in years) | | |
|---|---|---|---|
| | 18 and under | 18 to 65 | 65 and older |
| Monolingual | 152 | 263 | 80 |
| Bilingual | 139 | 201 | 19 |

A linguist has collected the data above from the residents of a small town. What is the ratio of monolingual residents to bilingual residents?

A)  359:495

B)  359:854

C)  495:359

D)  495:854

**7**

A plumber uses an average of 20 meters of copper pipe each week. Copper pipe costs $5 per meter. If the plumber wants to reduce her weekly expenditure on copper pipe by $4, what length of copper pipe should she buy each week, in meters?

A)  25

B)  $\dfrac{96}{5}$

C)  $\dfrac{80}{5}$

D)  $\dfrac{5}{4}$

**8**

$$h = 3.97f + 2.15$$

A gerontologist uses the model above to estimate a person's height in centimeters, $h$, in terms of the length of the person's femur in centimeters, $f$. Based on the model, a person with a femur one centimeter longer than another person's would be how many centimeters taller?

A)  1

B)  2.15

C)  3.97

D)  6.12

**9**
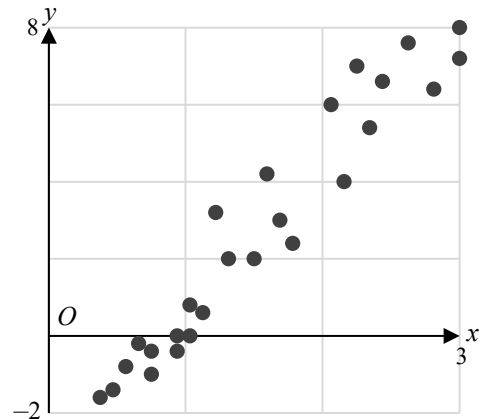


Which of the following equations could approximate the line of best fit for the scatterplot above?

A)  $y = -4x - 4$

B)  $y = -4x + 4$

C)  $y = 4x - 4$

D)  $y = 4x - 8$

CONTINUE

**10**

A livestock buyer must purchase a total of at least 40 cows and sheep and deliver them on her truck. Cows weigh an average of 700 kilograms and sheep weigh an average of 85 kilograms. If her truck can hold a maximum weight of 20,000 kilograms, and $c$ represents the number of cows she buys and $s$ represents the number of sheep she buys, which of the following systems of inequalities represents the number of animals she must purchase?

A)  $c + s \leq 40$

     $700c + 85s \leq 20{,}000$

B)  $c + s \leq 40$

     $700c + 85s \geq 20{,}000$

C)  $c + s \geq 40$

     $700c + 85s \leq 20{,}000$

D)  $c + s \geq 40$

     $700c + 85s \geq 20{,}000$

**CONTINUE**

**Questions 11-13 refer to the following information.**

The table below is an excerpt of a report released by Statistics Canada in 2008, which shows a summary of country-wide agricultural data from the years 1986 to 2006.

| Census Information from Farms in Canada (1986-2006) | | | | | |
|---|---|---|---|---|---|
| | 1986 | 1991 | 1996 | 2001 | 2006 |
| Total number of farms | 293,089 | 280,043 | 276,548 | 246,923 | 229,373 |
| Sod | | | | | |
| Area in hectares | 20,074 | 26,797 | 21,964 | 22,467 | 27,960 |
| Total greenhouse products | | | | | |
| Area in square meters | 5,176,091 | 9,306,557 | 13,437,024 | 17,567,491 | 21,697,957 |

**11**

A farmer wants to find out how many farms there will be in 2017 by using a linear function. Which of the following functions correctly approximates the number of farms in thousands, $f(t)$, in terms of the number of years since 1986, $t$?

A) $f(t) = -2.94t + 293,000$

B) $f(t) = 293t - 2.94$

C) $f(t) = -2.94t + 293$

D) $f(t) = 2.94t + 293$

**12**

What was the percentage increase in the area covered by sod in Canada, from the year 1991 to the year 2006?

(A) 4

(B) 24

(C) 27

(D) 40

**13**

Total Greenhouse Products
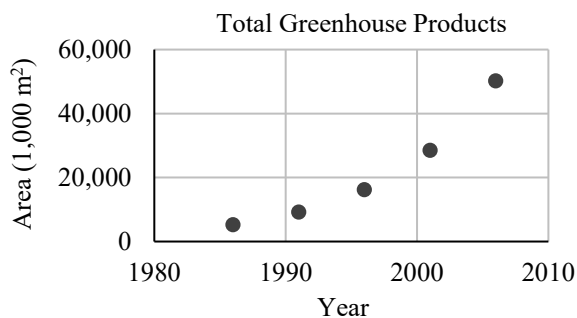


A similar survey is conducted in China, and the results are shown in the scatterplot above. Which of the following statements is an accurate conclusion, based on a comparison between the two countries' greenhouse product growth rates?

(A) Both China's and Canada's production of greenhouse products are growing exponentially.

(B) Both China's and Canada's production of greenhouse products are growing linearly.

(C) China's production of greenhouse products is growing linearly, but Canada's is growing exponentially.

(D) China's production of greenhouse products is growing exponentially, but Canada's is growing linearly.

CONTINUE

## 14
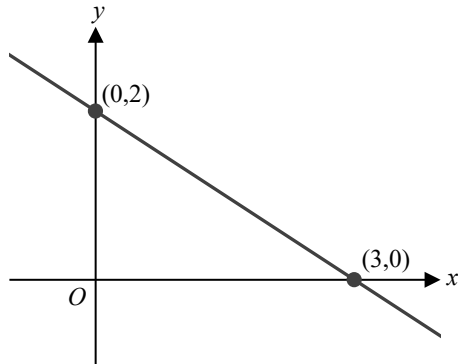


Which of the following are equations of the line graphed in the *xy*-plane above?

I.   $y = -\frac{2}{3}x + 2$

II.  $-3y + 6 = 2x$

III. $\frac{3}{2}x = 2 - y$

A) I only
B) III only
C) I and II only
D) I, II, and III

## 15

$$-\frac{1}{2}x + y = -10$$
$$6y + 60 = 3x$$

Which of the following statements is true about the system of equations above?

A) The equations represent perpendicular lines.
B) The equations represent distinct parallel lines.
C) The equations represent the same line.
D) The equations do not represent lines.

## 16

The luminosity (measure of brightness) of a certain star increases by one gigawatt every year. The luminosity of a nearby nebula increases by 1% every year. If both the star and the nebula have the same luminosity now, which of the following must be true?

A) After some time, the star will always be brighter than the nebula.
B) After some time, the nebula will always be brighter than the star.
C) The star and the nebula will always be equally bright.
D) Without more information, it is impossible to determine whether the star or the nebula will eventually be brighter.

**Questions 17 and 18 refer to the following data:**

An anthropologist surveyed a random sample of residents in two states to find out whether they had been born in their state of residence, in another state, or in another country. Her data are shown in the table below.

| Birthplaces of Rhode Island and California Residents (hundreds of residents) | | | |
|---|---|---|---|
| | In state of residence | In another U.S. state | In another country |
| Rhode Island | 776 | 23 | 64 |
| California | 630 | 161 | 72 |

**17**

What can the anthropologist reasonably conclude from her data?

A) Residents of California are more likely to leave the state than residents of Rhode Island.

B) Residents of California are more likely not to have been born in-state than residents of Rhode Island.

C) Residents of California are more likely to travel internationally than residents of Rhode Island.

D) Residents of California are more likely to have been born in another country or in another U.S. state than to have been born in-state.

**18**

The population of California is approximately 37 times the population of Rhode Island. If 28,000 residents of Rhode Island were born in another U.S. state, and assuming the anthropologist's survey is representative, approximately how many million California residents were born in another U.S. state?

A) 1.04

B) 2.80

C) 6.22

D) 7.25

**19**

A whack-a-mole vendor sells single tickets for $3 and pairs of tickets for $5. Exactly two people must play whack-a-mole at a time. On Monday, the vendor recorded that 33 games of whack-a-mole were played and that he made $172 from ticket sales. If everyone who bought a ticket played the game, how many $3 tickets were purchased on Monday?

A) 14

B) 16

C) 17

D) 18

**CONTINUE**

**20**

The Excellent Toaster Company finds that 20% of its toasters are defective. These defective toasters overheat 3% of the time when set to the "bagel" setting. If, on average, the "bagel" setting is selected one-eighth of the time, what is the probability that a toaster used at random will overheat?

A) 0.06%

B) 0.075%

C) 0.6%

D) 0.75%

**21**

A company sells 3 types of packages. Type A packages have $\frac{1}{4}$ the surface area of Type B packages, and Type C packages have $\frac{2}{3}$ the surface area of Type A packages. If Type B packages have a surface area of 240 square centimeters, how much more surface area, in square centimeters, does a Type A package have than a Type C package?

A) 20

B) 40

C) 60

D) 120

**Questions 22 and 23 refer to the following data:**

| | | Buttercups' Exposure to the Chemical | | |
|---|---|---|---|---|
| | | Exposed | Not Exposed | Total |
| Buttercups' Resistance to Flies | Resistant | 78 | 10 | 88 |
| | Non-resistant | 22 | 90 | 112 |
| | Total | 100 | 100 | 200 |

A botanist exposed 100 randomly selected buttercups to a new chemical, and then released parasitic flies into the buttercups' greenhouse. She then compared her sample with another 100 randomly selected buttercups that were not exposed to the new chemical. The results of her experiment are summarized in the table above.

**22**

The botanist reports her findings to a company that is interested in using the new chemical. Based on her experiment, which of the following statements is true?

A) Since the buttercups were not split into groups, the company can conclude that the chemical is not effective.

B) Since the buttercups were split into groups, the company can conclude that the chemical is not effective.

C) Since the buttercups were chosen at random, no conclusion can be reached regarding the effectiveness of the chemical.

D) Since the buttercups were chosen at random, the company can conclude that the chemical is effective.

**CONTINUE**

**23**

According to the results in the table, if a buttercup were found to be resistant to the flies after the experiment, what is the probability that it was exposed to the new chemical?

A) $\dfrac{39}{44}$

B) $\dfrac{39}{50}$

C) $\dfrac{5}{44}$

D) $\dfrac{2}{25}$

**24**

A farmer plants $t$ tomato vines per acre, and ties every third vine to a stake to support it and the two vines on either side of it. The farmer models the number of stakes he needs, $s$, with the equation $s = \dfrac{1}{3}ta$, where $a$ is the number of acres on his farm. Which of the following is the best interpretation of the number $\dfrac{1}{3}$ in this equation?

A) A constant to correct for tomato vines that fall off their stakes

B) The number of stakes per tomato vine

C) The fraction of the field's area that can be planted with tomato vines

D) The number of tomato vines per acre

**25**
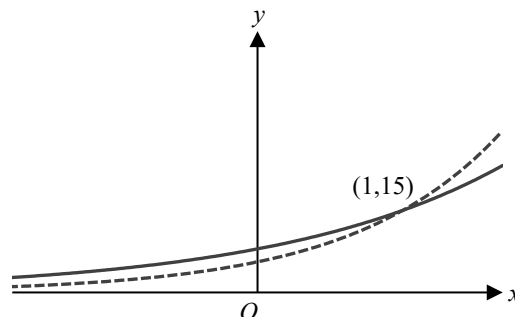


If the equation $y = 3 \times 5^x$ is represented by the dotted curve and the equation $y = a \times b^x$ is represented by the solid curve in the graph above, which of the following is true about $a$ and $b$?

A) $a < 3$ and $b < 5$

B) $a < 3$ and $b > 5$

C) $a > 3$ and $b < 5$

D) $a > 3$ and $b > 5$

**26**

Three dogs have weights, in pounds, of $w$, $w + 1$, and $w + 2$, where $w$ is some positive real number. If the ratio of the weight of the heaviest dog to that of the middle dog is the same as the ratio of the weight of the middle dog to that of the lightest dog, how many possible values of $w$ are there?

A) 0

B) 1

C) 2

D) Infinitely many

CONTINUE

**27**
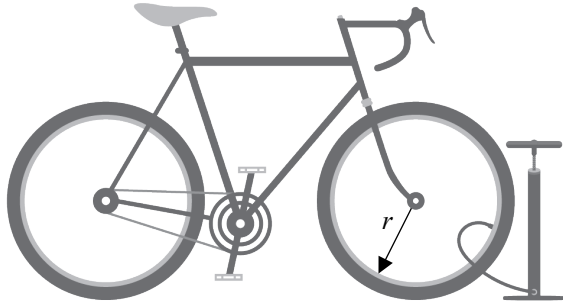


The volume of Ian's bike tire is approximated by the formula $V = \dfrac{r\pi^2 d^2}{2}$, where $V$ is the volume, $r$ is the radius of the wheel, and $d$ is the width of the tire. Ian gets a pump to inflate his tire. If he pumps for 10 seconds, and the volume of the tire increases from 12 to 192 cubic inches, by how much does the width of the tire increase?

A) Two times

B) Three times

C) Four times

D) Five times

**28**

| $B$ | Observed conditions |
|-----|---------------------|
| 0 | calm |
| 1 | light air |
| 2 | light breeze |
| 3 | gentle breeze |
| 4 | moderate breeze |
| 5 | fresh breeze |
| 6 | strong breeze |
| 7 | near gale |
| 8 | gale |
| 9 | strong gale |
| 10 | storm |
| 11 | violent storm |
| 12 | hurricane |

The Beaufort Scale relates wind speed to observed conditions according to the formula $v = 0.84B^{\frac{3}{2}}$, where $v$ is the wind speed in meters per second, and the Beaufort number, $B$, can be rounded to the nearest whole number to describe observed conditions. Based on the table above, what are the observed conditions if the wind speed is measured to be 17.6 meters per second?

A) Strong breeze

B) Near gale

C) Gale

D) Strong gale

**CONTINUE**

### 29

If the parabola given by $y = x^2 + a$ and the line given by $y = 4x$ have exactly one point of intersection, what is the value of $a$?

A) 0

B) 2

C) 4

D) 16

### 30

A publishing company currently sells math workbooks for $20 each, and they sell 50 books per month on average. If the company predicts that for every $0.50 increase in the price of the book they will sell one fewer book per month, what price, in dollars, should the company sell its books at to maximize its revenue? (Revenue = price × number sold.)

A) 21.00

B) 21.50

C) 22.00

D) 22.50

CONTINUE

**DIRECTIONS**

Questions **31-38** ask you to solve a problem and enter your answer in the grid provided on your answer sheet. When completing grid-in questions:

1. You are required to bubble in the circles for your answers. It is recommended, but not required, that you also write your answer in the boxes above the columns of circles. Points will be awarded based only on whether the circles are filled in correctly.

2. Fill in only one circle in a column.

3. You can start your answer in any column as long as you can fit in the whole answer.

4. For questions 31-38, no answers will be negative numbers.

5. **Mixed numbers**, such as $4\frac{2}{5}$, must be gridded as decimals or improper fractions, such as 4.4 or as 22/5. "42/5" will be read as "forty-two over five," not as "four and two-fifths."

6. If your answer is a **decimal** with more digits than will fit on the grid, you may round it or cut it off, but you must fill the entire grid.

7. If there are **multiple correct solutions** to a problem, all of them will be considered correct. Enter only **one** on the grid.

CONTINUE

## 31

A solar-powered golf cart can drive at up to 12 miles per hour. If one kilometer is approximately 0.6 miles, what is the cart's speed, in kilometers per minute?

## 32

If $|x| = x + 8$, what is the value of $-x$?

## 33
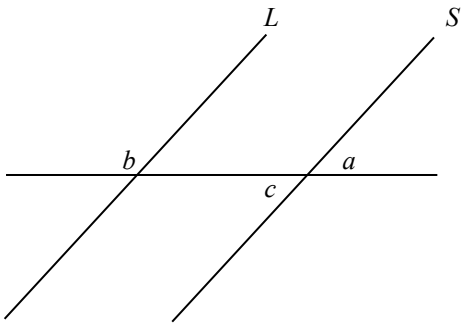


If lines $L$ and $S$ are parallel, and $a + c = 80°$, what is the value of $b$? (Note: Ignore the degree sign when gridding your answer.)

## 34

A beehive has a capacity of 80,000 bees and a current population of 60,000 bees. If adding one ounce of honey allows 300 more bees to join the hive, what is the maximum number of ounces of honey that the beekeeper could add to the hive without it exceeding its capacity?

## 35
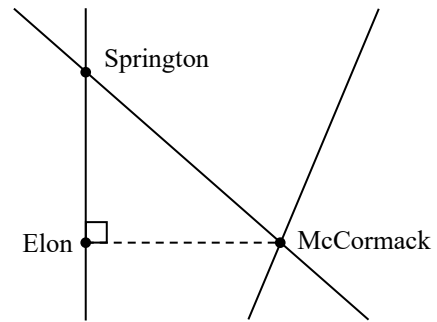


The diagram above shows the highway system around 3 small towns. The local government is considering building a 4-mile road between Elon and McCormack, represented by the dotted line, to reduce the commuting distance between the 2 towns. Currently, commuters from either town must travel through Springton to get to the other. Adding the new road would reduce the total traveling distance by half. What is the distance, in miles, from McCormack to Springton?

CONTINUE

**36**

Lauren is packing the books in her library. She's able to fit 2 paperback books in a box with no space left over, and 16 paperback books in a larger box with no space left over. If the dimensions of the first box are $x$ by $x$ by $x$, and the dimensions of the second box are $kx$ by $kx$ by $kx$, what is the value of $k$?

**38**

Once a robot has finished cleaning the whole room, it starts over and cleans it again. In 75 minutes, what percentage of the floor would be cleaned twice by a robot with the median floor-cleaning efficiency? (Ignore the percent sign when gridding your answer.)

**Questions 37 and 38 refer to the following information.**

To compare the efficiency of different self-driving robots, researchers gave each robot 30 minutes to clean a floor, and then calculated what percentage of the room was cleaned by looking at the area that the robot covered. The researchers' data is shown in the dot plot below.



Percentage of Floor Cleaned
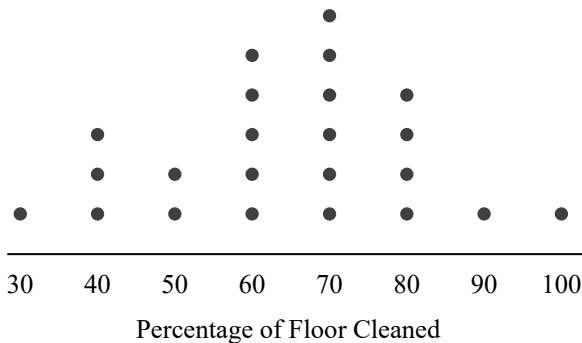
**37**

If the fastest robot covers 15 square feet per minute, what is the speed, in square feet per minute, of the slowest robot?

# STOP

**If you complete this section before the end of your allotted time, you may check your work on this section only. Do NOT use the time to work on another section.**

# Essay (Optional)

## 50 MINUTES

**Turn to the lined pages of your answer sheet to write your essay.**

---

### DIRECTIONS

This essay is optional. It is a chance for you to demonstrate how well you can understand and analyze a written passage. Your essay should show that you have carefully read the passage and should be a concisely written analysis that is both logical and clear.

You must write your entire essay on the lines in your answer booklet. No additional paper will be provided aside from the Planning Page inside your answer booklet. You will be able to write your entire essay in the space provided if you make use of every line, keep tight margins, and write at a suitable size. Don't forget to keep your handwriting legible for the readers evaluating your essay.

You will have 50 minutes to read the passage in this booklet and to write an essay in response to the prompt provided at the end of the passage.

### REMINDERS

- What you write in this booklet will not be evaluated. Write your essay in the answer booklet only.

- Essays that are off-topic will not be evaluated.

---

As you read the passage below, consider how Barack Obama uses

- evidence, like examples or facts, to support his arguments.
- logical reasoning to develop his ideas and to connect his claims to his evidence.
- stylistic or persuasive techniques, such as the choice of particular words or appeals to his readers' emotions, to give power to the ideas put forth.

Adapted from President Barack Obama, "Reforming Wall Street." The speech was delivered at Cooper Union on April 22nd, 2010.

1 Now, the fact that we're even here voting on a plan to rescue our economy from the greed and irresponsibility of Wall Street and some in Washington is an outrage. It's an outrage to every American who works hard, pays their taxes, is doing their best every day to make a better life for themselves and their families. And understandably, people are frustrated and they're angry that Wall Street's mistakes have put their tax dollars at risk. And they should be. I'm frustrated and angry, too.

2 But while there's plenty of blame to go around -- and many in Washington and Wall Street who deserve it—all of us have a responsibility to solve this crisis, because it affects the financial well-being of every single American. There will be time to punish those who set this fire, but now is not the time to argue about how it got set, or did the neighbor sleep in his bed, or leave the stove on. Right now we want to put out that fire; and now's the time for us to come together and do that.

3 When the House of Representatives failed to act on Monday, we saw the single largest decline in the stock market in two decades. Over one trillion dollars of wealth was lost by the time the markets closed. And it wasn't just the wealth of a few CEOs or Wall Street executives. The 401(k)s and retirement accounts of millions became smaller. The state pension funds of teachers and government employees lost billions upon billions of dollars. Hard-working Americans who invested their nest egg to watch it grow saw it diminish and, in some cases, disappear.

4 And while that decline was devastating, the consequences of the credit crisis that caused it will be even worse if we do not act now. We're in a very dangerous situation, where financial institutions across this country are afraid to lend money. And if all that meant was the failure of a few banks in New York, that would be one thing. But that's not what it means. What it means is, if we don't act, it will be harder for Americans to get a mortgage for their home or loans they need to buy a car or send their children to college. And potentially we could see thousands of businesses close, millions of jobs could be lost, and a long and painful recession could follow. In other words, this is not just a Wall Street crisis; it's an American crisis. And it's the American economy that needs this rescue plan.

5 This is not a plan to just hand over 700 billion dollars of taxpayer money to a few banks. If this is managed correctly—and that's an important "if"—we will hopefully get most or all of our money back and possibly even turn a profit on the government's intervention, every penny of which will go directly back to the American people. And if we fall short, we will levy a fee on financial institutions so that they can repay for the losses that they caused.

6 Now, let's acknowledge, even with all these taxpayer protections, this plan is not perfect. Democrats and Republicans in Congress have legitimate concerns about it. Some of my closest colleagues, people I have the greatest respect for, still have problems with it and may choose to vote against this bill, and I think that we can respectfully disagree. I understand their frustrations.

7    I also know that many Americans share their concerns. But it's clear that, from my perspective, this is what we need to do right now to prevent the possibility of a crisis turning into a catastrophe. It is conceivable that if we did nothing everything would turn out okay. There's a possibility that that's true. And there's no doubt that there may be other plans out there that, had we had two or three or six months to develop, might be even more refined and might serve our purposes better.

8    But we don't have that kind of time. And we can't afford to take a risk that the economy of the United States of America and, as a consequence, the worldwide economy could be plunged into a very, very deep hole. So to Democrats and Republicans who've opposed this plan, I say: step up to the plate. Let's do what's right for the country at this time, because the time to act is now.

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Write an essay in which you explain how President Barack Obama builds an argument to persuade his audience to implement a plan intended to correct a severe downturn in the stock market. In your essay, analyze how President Obama uses one or more of the features listed in the box above (or features of your own choice) to strengthen the logic and persuasiveness of his argument. Be sure that your analysis focuses on the most relevant features of the passage.

Your essay should not explain whether you agree with President Obama's claims, but rather explain how he builds an argument to persuade his audience.

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# Answers and Scoring

# Practice Test Answers

Part 1

For answer explanations, please visit **ivyglobal.com/study**.

## Reading

| | | | | |
|---|---|---|---|---|
| 1.  A | 12. A | 23. A | 34. A | 45. C |
| 2.  C | 13. C | 24. C | 35. C | 46. A |
| 3.  B | 14. D | 25. C | 36. A | 47. B |
| 4.  C | 15. D | 26. B | 37. D | 48. A |
| 5.  D | 16. A | 27. A | 38. D | 49. D |
| 6.  B | 17. D | 28. D | 39. B | 50. B |
| 7.  D | 18. B | 29. C | 40. B | 51. D |
| 8.  A | 19. B | 30. D | 41. C | 52. C |
| 9.  C | 20. D | 31. B | 42. B | |
| 10. A | 21. C | 32. A | 43. B | |
| 11. C | 22. A | 33. D | 44. B | |

## Writing

| | | | | |
|---|---|---|---|---|
| 1.  A | 10. C | 19. B | 28. B | 37. B |
| 2.  B | 11. D | 20. C | 29. B | 38. C |
| 3.  D | 12. C | 21. A | 30. A | 39. A |
| 4.  B | 13. A | 22. C | 31. B | 40. B |
| 5.  A | 14. A | 23. B | 32. A | 41. C |
| 6.  D | 15. B | 24. C | 33. C | 42. C |
| 7.  A | 16. B | 25. B | 34. D | 43. D |
| 8.  D | 17. D | 26. C | 35. D | 44. D |
| 9.  B | 18. D | 27. C | 36. C | |

## Math – No Calculator

| | | | | |
|---|---|---|---|---|
| 1. D | 5. B | 9.  D | 13. B | 17. 2 |
| 2. D | 6. C | 10. A | 14. C | 18. 5 |
| 3. C | 7. B | 11. A | 15. C | 19. 60 |
| 4. A | 8. D | 12. C | 16. 900 | 20. 9 |

## Math – Calculator

| | | | | |
|---|---|---|---|---|
| 1. D | 9. C | 17. B | 25. C | 33. 140 |
| 2. D | 10. C | 18. D | 26. A | 34. 66 |
| 3. C | 11. C | 19. A | 27. C | 35. 5 |
| 4. C | 12. A | 20. B | 28. C | 36. 2 |
| 5. A | 13. D | 21. A | 29. C | 37. 9/2 or 4.5 |
| 6. C | 14. C | 22. D | 30. D | 38. 75 |
| 7. B | 15. C | 23. A | 31. 1/3 or .333 | |
| 8. C | 16. B | 24. B | 32. 4 | |
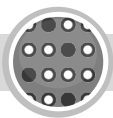
For live scoring and scaling, please visit **cloud.ivyglobal.com**.

# The Scoring System
Part 2

The SAT has three test scores on a scale from 10 to 40. There is one test score for each test: the Reading Test, the Writing and Language Test, and the Math Test. The Reading Test score and the Writing and Language Test score are added together and converted to a single area score in Evidence-Based Reading and Writing; there is also an area score in Math-based on the Math Test Score.

The area scores are on a scale from 200 to 800. Added together, they form the composite score for the whole test, on a scale from 400 to 1600. The Essay is scored separately and does not affect your scores in other areas.

| SAT Scoring | |
|---|---|
| Test Scores (10 to 40) | • Reading Test<br>• Writing and Language Test<br>• Math Test |
| Area Scores (200 to 800) | • Evidence-Based Reading and Writing<br>• Math |
| Composite Score (400 to 1600) | • Math (Area Score) + Evidence-Based Reading and Writing (Area Score) |
| Essay Scores  (1 to 4) | • Reading<br>• Analysis<br>• Writing |

**Cross-test scores** for **Analysis in Science** and **Analysis in History/Social Studies** are based on performance on specific questions across different tests relating to specific types of content. For example, your cross-test score in Analysis in Science is based on your performance on questions relating to science passages on the Reading Test as well as questions using scientific data on the Math Test. These scores are on a scale from 10 to 40.

There are also seven **subscores** based on particular question types within each test section. Subscores are reported on a scale from 1 to 15. Four are related to particular questions in the Reading and Writing and Language Test: Words in Context, Command of Evidence, Expression of Ideas, and Standard English Conventions. The other three relate to specific types of questions on the Math Test: Heart of Algebra, Problem Solving and Data Analysis, and Passport to Advanced Math.

## Cross-Test Scores and Subscores

You will receive **cross-test scores** for Analysis in Science and Analysis in History/Social Studies. The scores are based on your performance on questions in their respective subject domains across all sections of the exam. These scores are reported on a scale of 10-40.

You will also receive **subscores** based on your performance on certain question types within each test section. Subscores are reported on a scale of 1-15. There are seven subscores, for the following areas:

- **Words in Context:** this subscore is based on your performance on questions related to determining the meanings of words in the context of a passage in the Reading and Writing and Language tests.

- **Command of Evidence:** this subscore is based on your performance on questions that ask you to identify the best evidence in the Reading and Writing and Language tests.

- **Expression of Ideas:** this subscore is based on your performance on questions that ask you to identify clear, stylistically appropriate choices in Writing passages.

- **Standard English Conventions:** this subscore is based on your performance on questions that ask you to identify and correct errors of grammar, punctuation, usage, and syntax in Writing passages.

- **Heart of Algebra:** this subscore is based on your performance on Math questions testing key concepts in Algebra.

- **Problem Solving and Data Analysis**: this subscore is based on your performance on Math questions testing your ability to analyze sets of data, the meanings of units and quantities, and the properties of different objects and operations.

- **Passport to Advanced Math:** this subscore is based on your performance on Math questions that test the skills you'll build on as you continue to learn more advanced math including rewriting expressions, solving quadratic equations, working with polynomials and radicals, and solving systems of equations.

You can calculate these scores online using our free scoring tools.

For live scoring and scaling, please visit **cloud.ivyglobal.com**.

# Scoring Your Tests
Part 3

You can score your tests online using our free scoring tools, or you can use the tables below to help you calculate your scores.
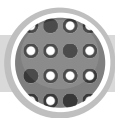
For live scoring and scaling, please visit **cloud.ivyglobal.com**.

To score your tests manually, first use the answer key to mark each of your responses right or wrong. Then, calculate your **raw score** for each section by counting up the number of correct responses.

| Raw Score (# of Questions Correct) | |
|---|---|
| Section | Score |
| 1. Reading | _____ |
| 2. Writing and Language | _____ |
| 3. Math: No-Calculator | _____ |
| 4. Math: Calculator | _____ |
| | |
| Raw Score for Reading (Section 1) | _____ |
| Raw Score for Writing and Language (Section 2) | _____ |
| Raw Score for Math (Section 3 + 4) | _____ |

## Scaled Scores

Once you have found your raw score for each section, convert it into an approximate **scaled test score** using the following chart. To find a scaled test score for each section, find the row in the Raw Score column which corresponds to your raw score for that section, then check the column for the section you are scoring in the same row. For example, if you had a raw score of 48 for Reading, then your scaled Reading test score would be 39. Keep in mind that these scaled scores are estimates only. Your actual SAT score will be scaled against the scores of all other high school students taking the test on your test date.

| Raw Score | Math Scaled Score | Reading Scaled Score | Writing Scaled Score | Raw Score | Math Scaled Score | Reading Scaled Score | Writing Scaled Score |
|---|---|---|---|---|---|---|---|
| 58 | 40 | | | 28 | 23 | 26 | 25 |
| 57 | 40 | | | 27 | 22 | 25 | 24 |
| 56 | 40 | | | 26 | 22 | 25 | 24 |
| 55 | 39 | | | 25 | 21 | 24 | 23 |
| 54 | 38 | | | 24 | 21 | 24 | 23 |
| 53 | 37 | | | 23 | 20 | 23 | 22 |
| 52 | 36 | 40 | | 22 | 20 | 22 | 21 |
| 51 | 35 | 40 | | 21 | 19 | 22 | 21 |
| 50 | 34 | 40 | | 20 | 19 | 21 | 20 |
| 49 | 34 | 39 | | 19 | 18 | 20 | 20 |
| 48 | 33 | 39 | | 18 | 18 | 20 | 19 |
| 47 | 33 | 38 | | 17 | 17 | 19 | 19 |
| 46 | 32 | 37 | | 16 | 16 | 19 | 18 |
| 45 | 32 | 36 | | 15 | 15 | 18 | 18 |
| 44 | 31 | 35 | 40 | 14 | 14 | 17 | 17 |
| 43 | 30 | 34 | 39 | 13 | 13 | 16 | 16 |
| 42 | 30 | 34 | 38 | 12 | 12 | 16 | 15 |
| 41 | 29 | 33 | 37 | 11 | 11 | 14 | 14 |
| 40 | 29 | 33 | 35 | 10 | 10 | 13 | 13 |
| 39 | 28 | 32 | 34 | 9 | 10 | 12 | 12 |
| 38 | 28 | 31 | 33 | 8 | 10 | 11 | 11 |
| 37 | 27 | 31 | 32 | 7 | 10 | 10 | 10 |
| 36 | 27 | 30 | 31 | 6 | 10 | 10 | 10 |
| 35 | 26 | 30 | 30 | 5 | 10 | 10 | 10 |
| 34 | 26 | 29 | 29 | 4 | 10 | 10 | 10 |
| 33 | 25 | 29 | 28 | 3 | 10 | 10 | 10 |
| 32 | 25 | 28 | 27 | 2 | 10 | 10 | 10 |
| 31 | 24 | 28 | 27 | 1 | 10 | 10 | 10 |
| 30 | 24 | 27 | 26 | 0 | 10 | 10 | 10 |
| 29 | 23 | 26 | 26 | | | | |

Use the table below to record your scaled scores:

| Scaled Scores | |
| --- | --- |
| Section | Score |
| Reading (Out of 40) | _____ |
| Writing and Language (Out of 40) | _____ |
| Math (Out of 40) | _____ |

## Essay Score

Estimate your essay score by assigning your essay a score out of 1-4 in each scoring area listed below. Have a trusted reader check your work. For more information on essay scoring criteria, see Chapter 4 of Ivy Global's New SAT Guide.

| Essay Score | | | | | | |
| --- | --- | --- | --- | --- | --- | --- |
| Scoring Area | Reading | | Analysis | | Writing | |
| | Reader 1 | Reader 2 | Reader 1 | Reader 2 | Reader 1 | Reader 2 |
| Test 1 | _____ | _____ | _____ | _____ | _____ | _____ |

## Area Score Conversion

You can look up your area score out of 800 below. To find your overall score, combine your area score for Reading + Writing with your area score for Math to get your total score out of 1600.

### Reading + Writing

| Scaled Score | Area Score | Scaled Score | Area Score | Scaled Score | Area Score |
| --- | --- | --- | --- | --- | --- |
| 80 | 760-800 | 59 | 550-630 | 39 | 350-430 |
| 79 | 750-800 | 58 | 540-620 | 38 | 340-420 |
| 78 | 740-800 | 57 | 530-610 | 37 | 330-410 |
| 77 | 730-800 | 56 | 520-600 | 36 | 320-400 |
| 76 | 720-800 | 55 | 510-590 | 35 | 310-390 |
| 75 | 710-790 | 54 | 500-580 | 34 | 300-380 |
| 74 | 700-780 | 53 | 490-570 | 33 | 290-370 |
| 73 | 690-770 | 52 | 480-560 | 32 | 280-360 |
| 72 | 680-760 | 51 | 470-550 | 31 | 270-350 |
| 71 | 670-750 | 50 | 460-540 | 30 | 260-340 |
| 70 | 660-740 | 49 | 450-530 | 29 | 250-330 |
| 69 | 650-730 | 48 | 440-520 | 28 | 240-320 |
| 68 | 640-720 | 47 | 430-510 | 27 | 230-310 |
| 67 | 630-710 | 46 | 420-500 | 26 | 220-300 |
| 66 | 620-700 | 45 | 410-490 | 25 | 210-290 |
| 65 | 610-690 | 44 | 400-480 | 24 | 200-280 |
| 64 | 600-680 | 43 | 390-470 | 23 | 200-270 |
| 63 | 590-670 | 42 | 380-460 | 22 | 200-260 |
| 62 | 580-660 | 41 | 370-450 | 21 | 200-250 |
| 61 | 570-650 | 40 | 360-440 | 20 | 200-240 |
| 60 | 560-640 | | | | |

Math

| Total Points | Area Score | Total Points | Area Score |
|---|---|---|---|
| 40 | 760-800 | 24 | 440-520 |
| 39 | 740-800 | 23 | 420-500 |
| 38 | 720-800 | 22 | 400-480 |
| 37 | 700-780 | 21 | 380-460 |
| 36 | 680-760 | 20 | 360-440 |
| 35 | 660-740 | 19 | 340-420 |
| 34 | 640-720 | 18 | 320-400 |
| 33 | 620-700 | 17 | 300-380 |
| 32 | 600-680 | 16 | 280-360 |
| 31 | 580-660 | 15 | 260-340 |
| 30 | 560-640 | 14 | 240-320 |
| 29 | 540-620 | 13 | 220-300 |
| 28 | 520-600 | 12 | 200-280 |
| 27 | 500-580 | 11 | 200-260 |
| 26 | 480-560 | 10 | 200-240 |
| 25 | 460-540 | | |

Use the table below to record your area scores and to calculate your overall score:

| | Reading + Writing Area Score | | Math Area Score | | Overall Score (400-1600) |
|---|---|---|---|---|---|
| Test Score | _____ | + | _____ | = | _____ |