CollegeBoard

SAT PRACTICE ANSWER SHEET

COMPLETE MARK ● EXAMPLES OF INCOMPLETE MARKS ⊘ ⊖ ◔ ◌ ◔ ⊗

Name: _____

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SECTION 1

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

SECTION 2

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

SECTION 3

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

16 ____ 17 ____ 18 ____ 19 ____ 20 ____

SECTION 4

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

31 ____ 32 ____ 33 ____ 34 ____ 35 ____ 36 ____ 37 ____ 38 ____

April 2018

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CollegeBoard

Reading Test

65 MINUTES, 52 QUESTIONS

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

DIRECTIONS

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

Questions 1-10 are based on the following passage.

This passage is adapted from Nikolai Gogol, "The Mysterious Portrait." Originally published in 1835.

Young Tchartkoff was an artist of talent, which promised great things: his work gave evidence of observation, thought, and a strong inclination to approach nearer to nature.

"Look here, my friend," his professor said to him more than once, "you have talent; it will be a shame if you waste it: but you are impatient; you have but to be attracted by anything, to fall in love with it, you become engrossed with it, and all else goes for nothing, and you won't even look at it. See to it that you do not become a fashionable artist. At present your colouring begins to assert itself too loudly; and your drawing is at times quite weak; you are already striving after the fashionable style, because it strikes the eye at once. Have a care! society already begins to have its attraction for you: I have seen you with a shiny hat, a foppish neckerchief. . . . It is seductive to paint fashionable little pictures and portraits for money; but talent is ruined, not developed, by that means. Be patient; think out every piece of work, discard your foppishness; let others amass money, your own will not fail you."

The professor was partly right. Our artist sometimes wanted to enjoy himself, to play the fop, in short, to give vent to his youthful impulses in some way or other; but he could control himself withal. At times he would forget everything, when he had once taken his brush in his hand, and could not tear himself from it except as from a delightful dream. His taste perceptibly developed. He did not as yet understand all the depths of Raphael, but he was attracted by Guido's broad and rapid handling, he paused before Titian's portraits, he delighted in the Flemish masters. The dark veil enshrouding the ancient pictures had not yet wholly passed away from before them; but he already saw something in them, though in private he did not agree with the professor that the secrets of the old masters are irremediably lost to us. It seemed to him that the nineteenth century had improved upon them considerably, that the delineation of nature was more clear, more vivid, more close. It sometimes vexed him when he saw how a strange artist, French or German, sometimes not even a painter by profession, but only a skilful dauber, produced, by the celerity of his brush and the vividness of his colouring, a universal commotion, and amassed in a twinkling a funded capital. This did not occur to him when fully occupied with his own work, for then he forgot food and drink and all the world. But when dire want arrived, when he had no money wherewith to buy brushes and colours, when his implacable landlord came ten times a day to demand the rent for his rooms, then did the luck of the wealthy artists recur to his hungry imagination; then did the thought which so often traverses Russian minds, to give up altogether, and go down hill, utterly to the bad, traverse his. And now he was almost in this frame of mind.

"Yes, it is all very well, to be patient, be patient!" he exclaimed, with vexation; "but there is an end to patience at last. Be patient! but what money have I to

CONTINUE

buy a dinner with to-morrow? No one will lend me any. If I did bring myself to sell all my pictures and sketches, they would not give me twenty kopeks for the whole of them. They are useful; I feel that not one of them has been undertaken in vain; I have learned something from each one. Yes, but of what use is it? Studies, sketches, all will be studies, trial-sketches to the end. And who will buy, not even knowing me by name? Who wants drawings from the antique, or the life class, or my unfinished love of a Psyche, or the interior of my room, or the portrait of Nikita, though it is better, to tell the truth, than the portraits by any of the fashionable artists? Why do I worry, and toil like a learner over the alphabet, when I might shine as brightly as the rest, and have money, too, like them?"

1

The passage is primarily focused on the

A) influence of a professor on one of his students.
B) struggles of a young artist conflicted about his values.
C) descent of a character into hopelessness and madness.
D) personal life of a young painter in relation to his art.

2

The first paragraph serves mainly to establish the

A) ironic outlook of the narrator.
B) central conflict depicted in the passage.
C) main character's defining artistic traits.
D) relationship between two characters.

3

The passage suggests that Tchartkoff's professor believes that great art should be

A) technically accomplished and not garish.
B) pleasing to the eye but not overly popular.
C) original in approach and spontaneous in execution.
D) representative of the artist's morals and beliefs.

4

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

A) Lines 5-10 ("Look . . . at it")
B) Lines 11-15 ("At present . . . once")
C) Lines 15-17 ("Have . . . neckerchief")
D) Lines 23-27 ("The professor . . . withal")

5

As used in lines 11, 14, and 18, the word "fashionable" most nearly means

A) stylish.
B) trendy.
C) modern.
D) conventional.

6

According to the passage, one point of disagreement between Tchartkoff and his professor concerns whether

A) making money from selling paintings destroys artistic integrity.
B) fashionable artists are capable of making enough money from their art to support themselves.
C) nineteenth-century painters had been able to expand on the insights of the old masters.
D) nonprofessional painters are capable of producing serious artworks.

CONTINUE

7

As used in line 50, "want" most nearly means

A) need.
B) absence.
C) ambition.
D) greed.

8

The passage suggests that to some extent, Tchartkoff finds maintaining his high artistic standards to be a

A) means of attaining short-lived fame as opposed to a lasting reputation.
B) goal less important for his professor than it is for himself.
C) necessary pathway to a goal he now seeks to accomplish.
D) laborious undertaking that does not provide suitable compensation.

9

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

A) Lines 59-61 ("Yes . . . last")
B) Lines 63-65 ("If I . . . them")
C) Lines 69-70 ("And who . . . name")
D) Lines 74-77 ("Why . . . them")

10

The last paragraph primarily serves to

A) suggest contradictions in Tchartkoff's argument.
B) expose the hypocrisy of Tchartkoff's mind-set.
C) catalog Tchartkoff's frustrations with his situation.
D) examine the subject matter of Tchartkoff's paintings.

Questions 11-20 are based on the following passage and supplementary material.

This passage is adapted from Tara Thean, "Remember That? No You Don't. Study Shows False Memories Afflict Us All." ©2013 by Time, Inc.

The phenomenon of false memories is common to everybody—the party you're certain you attended in high school, say, when you were actually home with the flu, but so many people have told you about it over the years that it's made its way into your own memory cache. False memories can sometimes be a mere curiosity, but other times they have real implications. Innocent people have gone to jail when well-intentioned eyewitnesses testify to events that actually unfolded an entirely different way.

What's long been a puzzle to memory scientists is whether some people may be more susceptible to false memories than others—and, by extension, whether some people with exceptionally good memories may be immune to them. A new study in the *Proceedings of the National Academy of Sciences* answers both questions with a decisive no. False memories afflict everyone—even people with the best memories of all.

To conduct the study, a team led by psychologist Lawrence Patihis of the University of California, Irvine, recruited a sample group of people all of approximately the same age and divided them into two subgroups: those with ordinary memory and those with what is known as highly superior autobiographical memory (HSAM). You've met people like that before, and they can be downright eerie. They're the ones who can tell you the exact date on which particular events happened—whether in their own lives or in the news—as well as all manner of minute additional details surrounding the event that most people would forget the second they happened.

The scientists showed participants word lists, then removed the lists and tested the subjects on words that had and hadn't been included. Each list invoked a so-called critical lure—a word commonly associated with the words on the list, but that did not actually appear on the list. The word *sleep*, for example, might be falsely remembered as appearing on a list that included the words *pillow*, *duvet* and *nap*. All of the participants in both groups fell for the lures, with at least eight such errors per person—though some tallied as many as 20. Both groups also

CONTINUE

performed unreliably when shown photographs and fed information intended to make them think they'd seen details in the pictures they hadn't. Here too, the HSAM subjects cooked up as many fake images as the ordinary folks.

"What I love about the study is how it communicates something that memory-distortion researchers have suspected for some time, that perhaps no one is immune to memory distortion," said Patihis.

What the study doesn't do, Patihis admits, is explain why HSAM people exist at all. Their prodigious recall is a matter of scientific fact, and one of the goals of the new work was to see if an innate resistance to manufactured memories might be one of the reasons. But on that score, the researchers came up empty.

"It rules something out," Patihis said. "[HSAM individuals] probably reconstruct memories in the same way that ordinary people do. So now we have to think about how else we could explain it." He and others will continue to look for that secret sauce that elevates superior recall over the ordinary kind. But for now, memory still appears to be fragile, malleable and prone to errors—for all of us.

Figure 1

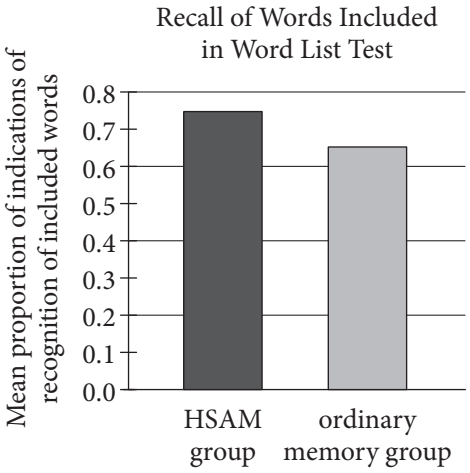
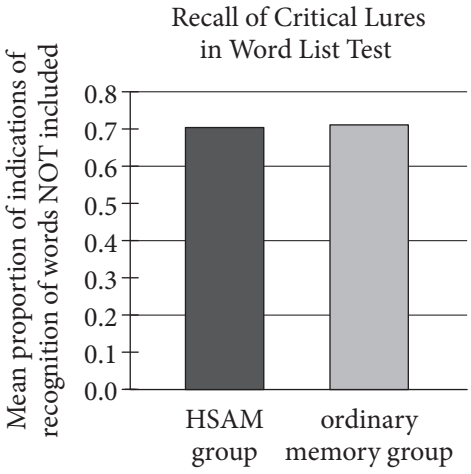


Figure 2



Figures adapted from Lawrence Patihis et al., "False Memories in Highly Superior Autobiographical Memory Individuals." ©2013 by Lawrence Patihis et al.

11

As used in line 7, "curiosity" most nearly means

A) concern.
B) question.
C) oddity.
D) wonder.

12

Which statement about false memories can reasonably be inferred from the passage?

A) They can interfere with a person's deductive reasoning ability.
B) They correlate with attempts to remember large amounts of information.
C) They are more commonly associated with events in the distant rather than the recent past.
D) They can have consequences that are genuinely damaging.

CONTINUE

13

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

A) Lines 1-6 ("The phenomenon . . . cache")
B) Lines 6-8 ("False . . . implications")
C) Lines 8-10 ("Innocent . . . way")
D) Lines 17-19 ("False . . . all")

14

As used in line 28, "exact" most nearly means

A) precise.
B) rigorous.
C) honest.
D) distinct.

15

According to the passage, one characteristic of the word lists used in the study was that each list

A) appeared in conjunction with related visual images.
B) consisted of words intended to evoke emotional reactions.
C) included words related to a central theme or topic.
D) made use of relatively straightforward words.

16

Which statement about the study led by Patihis can reasonably be inferred from the passage?

A) Its overall goal has been questioned by several researchers.
B) Its main finding was not a surprise to certain scientists.
C) Its methodology is thought to be highly innovative.
D) It provided a definitive resolution to an ongoing debate.

17

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

A) Lines 50-54 ("What . . . Patihis")
B) Lines 55-56 ("What . . . all")
C) Lines 56-60 ("Their . . . reasons")
D) Lines 62-65 ("It rules . . . explain it")

CONTINUE

18

What claim about the participants' recall of included words is supported by figure 1?

A) The mean proportion of indications of recognition of included words was over 0.8 in the HSAM group and about 0.7 in the ordinary memory group.

B) The mean proportion of indications of recognition of included words was over 0.7 in the HSAM group and between 0.6 and 0.7 in the ordinary memory group.

C) There was no difference between the HSAM group and the ordinary memory group.

D) The ordinary memory group recalled more included words than did the HSAM group.

19

Figure 1 and figure 2 together support which conclusion about the study subjects with ordinary memory?

A) They often recalled words that neither were included on the list nor were critical lures.

B) They were allowed more time to complete the test than were the study subjects with HSAM.

C) They recalled a greater proportion of critical lures than included words, on average.

D) They confused critical lures for included words approximately 50 percent of the time, on average.

20

Figure 2 and the passage both support which assertion about people with HSAM?

A) They are characterized by an exceptional ability to recall minute details of daily events.

B) They are almost as susceptible to verbal lures as they are to visual lures.

C) They are more skilled than people with ordinary memory in distinguishing false memories from true memories.

D) They are about as susceptible to memory distortion as are people with ordinary memory.

Questions 21-30 are based on the following passage.

This passage is adapted from "Beans' Talk." ©2013 by The Economist Newspaper Limited.

The idea that plants have developed a subterranean internet, which they use to raise the alarm when danger threatens, sounds like science fiction. But David Johnson of the University of Aberdeen believes he has shown that just such an internet, with fungal hyphae [the branching filaments that make up a fungus's body] standing in for local Wi-Fi, alerts beanstalks to danger if one of their neighbours is attacked by aphids.

Dr. Johnson knew from his own past work that when broad-bean plants are attacked by aphids they respond with volatile chemicals that both irritate the parasites and attract aphid-hunting wasps. He did not know, though, whether the message could spread from plant to plant. So he set out to find out—and to do so in a way which would show if fungi were the messengers.

He and his colleagues set up eight "mesocosms" [enclosed natural environments], each containing five beanstalks. The plants were allowed to grow for four months, and during this time every plant could interact with symbiotic fungi in the soil.

Not all of the beanstalks, though, had the same relationship with the fungi. In each mesocosm, one plant was surrounded by a mesh penetrated by holes half a micron [0.0001 centimeter] across. Gaps that size are too small for either roots or hyphae to penetrate, but they do permit the passage of water and dissolved chemicals. Two plants were surrounded with a 40-micron mesh. This can be penetrated by hyphae but not by roots. The two remaining plants, one of which was at the centre of the array, were left to grow unimpeded.

Five weeks after the experiment began, all the plants were covered by bags that allowed carbon dioxide, oxygen and water vapor in and out, but stopped the passage of larger molecules, of the sort a beanstalk might use for signalling. Then, four days from the end, one of the 40-micron meshes in each mesocosm was rotated to sever any hyphae that had penetrated it, and the central plant was then infested with aphids.

At the end of the experiment Dr. Johnson and his team collected the air inside the bags, extracted any volatile chemicals in it by absorbing them into a special porous polymer, and tested those chemicals on both aphids and wasps. Each insect was placed for five minutes in an apparatus that had two chambers, one of which contained a sample of the volatiles and the other an odorless control.

The researchers found that when the volatiles came from an infested plant, wasps spent an average of 3½ minutes in the chamber containing them and 1½ in the other chamber. Aphids, conversely, spent 1¾ minutes in the volatiles' chamber and 3¼ in the control. In other words, the volatiles from an infested plant attract wasps and repel aphids.

Crucially, the team got the same result in the case of uninfested plants that had been in uninterrupted hyphal contact with the infested one, but had had root contact blocked. If both hyphae and roots had been blocked throughout the experiment, though, the volatiles from uninfested plants actually attracted aphids (they spent 3½ minutes in the volatiles' chamber), while the wasps were indifferent. The same pertained for the odor of uninfested plants whose hyphal connections had been allowed to develop, and then severed by the rotation of the mesh.

Broad beans, then, really do seem to be using their fungal symbionts as a communications network, warning their neighbours to take evasive action. Such a general response no doubt helps the plant first attacked by attracting yet more wasps to the area, and it helps the fungal messengers by preserving their leguminous hosts.

21

The main purpose of the passage is to

A) discuss a finding that addresses an ongoing problem.

B) describe an experiment whose results support a particular conclusion.

C) introduce a research methodology that revolutionizes a process.

D) outline a scientific study that undermines a popular theory.

CONTINUE

22

The first paragraph of the passage introduces the subsequent discussion mainly by

A) indicating that communication among plants is more widespread than is recognized.

B) emphasizing the complexity of plant and parasite interactions.

C) using an analogy to show how communication among plants might occur.

D) providing a rationale for an unorthodox research study on plants.

23

The passage suggests that in designing the experiment, Johnson relied on the fact that

A) fungal hyphae warn beanstalks of danger if a nearby plant is attacked.

B) wasps are harmful to the ongoing existence of broad bean plants.

C) broad bean plants release noxious chemicals to ward off infestation.

D) aphids are able to withstand the aggressive maneuvers used by wasps.

24

Based on the passage, what research question was the experiment mainly attempting to answer?

A) How are wasps able to protect broad bean plants from an attack by aphids?

B) Will broad bean plants grown in an artificial environment release volatile chemicals?

C) Do broad bean plants use fungal hyphae to help convey information?

D) Can broad bean plants communicate if their roots are restricted from growing?

25

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

A) Lines 13-17 ("He did . . . messengers")

B) Lines 24-29 ("In each . . . chemicals")

C) Lines 29-31 ("Two . . . roots")

D) Lines 34-38 ("Five . . . signalling")

26

The third and fourth paragraphs (lines 18-33) primarily serve to

A) evaluate the experiment's methods.

B) formulate the experiment's goal.

C) document the experiment's findings.

D) explain the experiment's conditions.

27

As used in line 50, "control" most nearly means

A) regulating force.

B) restrictive mechanism.

C) comparative element.

D) supervising factor.

28

Based on the passage, which factor is most likely responsible for aphids' attraction to some of the uninfested plants in the experiment?

A) The plants were unable to receive distress signals from infested plants through hyphal contact.

B) The plants had emitted a chemical that repelled the wasps that were attracted to infested plants.

C) The plants had developed hyphal connections with the fungi.

D) The plants' root systems had become compromised by the aphids.

CONTINUE

29

Which choice best describes the nature of the relationship between the broad bean plants and fungi discussed in the passage?

A) Mutually beneficial, since both organisms profit from the arrangement

B) Somewhat unbalanced, since one organism appears to benefit more than the other

C) Highly parasitic, since one organism benefits while the other experiences harm

D) Necessarily codependent, since neither organism can produce chemicals independently of the other

30

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

A) Lines 58-61 ("Crucially . . . contact blocked")

B) Lines 61-64 ("If both . . . aphids")

C) Lines 65-69 ("The same . . . mesh")

D) Lines 72-76 ("Such . . . hosts")

Questions 31-41 are based on the following passages.

Passage 1 is adapted from a speech delivered in April 1865 by Frederick Douglass, "What the Black Man Wants." Passage 2 is adapted from a speech delivered in June 1865 by Richard H. Dana Jr., "To Consider the Subject of Re-organization of the Rebel States." Union general Nathaniel Banks instituted a forced labor policy for free African Americans in Louisiana. Dana played a prominent role in debates about the status of Southern states following the end of the US Civil War in 1865.

Passage 1

I hold that [Banks's] policy is our chief danger at the present moment; that it practically enslaves the Negro, and makes the [Emancipation] Proclamation Line of 1863 a mockery and delusion. What is freedom? It 5 is the right to choose one's own employment. Certainly it means that, if it means anything; and when any individual or combination of individuals undertakes to decide for any man when he shall work, where he shall work, at what he shall work, and 10 for what he shall work, he or they practically reduce him to slavery. He is a slave. That I understand Gen. Banks to do—to determine for the so-called freedman, when, and where, and at what, and for how much he shall work, when he shall be punished, 15 and by whom punished. It is absolute slavery. It defeats the beneficent intention of the Government, if it has beneficent intentions, in regards to the freedom of our people.

I have had but one idea for the last three years to 20 present to the American people, and the phraseology in which I clothe it is the old abolition phraseology. I am for the "immediate, unconditional, and universal" enfranchisement of the black man, in every State in the Union. Without this, his liberty is a 25 mockery; without this, you might as well almost retain the old name of slavery for his condition; for in fact, if he is not the slave of the individual master, he is the slave of society, and holds his liberty as a privilege, not as a right. He is at the mercy of the 30 mob, and has no means of protecting himself.

It may be objected, however, that this pressing of the Negro's right to suffrage is premature. Let us have slavery abolished, it may be said, let us have labor organized, and then, in the natural course of 35 events, the right of suffrage will be extended to the Negro. I do not agree with this. The constitution of the human mind is such, that if it once disregards the conviction forced upon it by a revelation of truth, it

CONTINUE

requires the exercise of a higher power to produce the same conviction afterwards. . . . This is the hour. Our streets are in mourning, tears are falling at every fireside, and under the chastisement of this Rebellion we have almost come up to the point of conceding this great, this all-important right of suffrage. I fear that if we fail to do it now, . . . we may not see, for centuries to come, the same disposition that exists at this moment.

Passage 2

Is it enough that we have emancipation and abolition upon the statute books? In some states of society, I should say yes. In ancient times when the slaves were of the same race with their masters, when the slaves were poets, orators, scholars, ministers of state, merchants, and the mothers of kings—if they were emancipated, nature came to their aid, and they reached an equality with their masters. Their children became patricians. But, my friends, this is a slavery of race; it is a slavery which those white people have been taught, for thirty years, is a divine institution. I ask you, has the Southern heart been fired for thirty years for nothing? Have those doctrines been sown, and no fruit reaped? Have they been taught that the negro is not fit for freedom, have they believed that, and are they converted in a day? Besides all that, they look upon the negro as the cause of their defeat and humiliation. . . .

What are their laws? Why, their laws, many of them, do not allow a free negro to live in their States. When we emancipated the slaves, did we mean they should be banished—is that it? Is that keeping public faith with them? And yet their laws declare so, and may declare it again.

That is not all! By their laws, a black man cannot testify in court; by their laws he cannot hold land; by their laws he cannot vote. Now, we have got to choose between two results. With these four millions of negroes, either you must have four millions of disfranchised, disarmed, untaught, landless, degraded men, or else you must have four millions of land-holding, industrious, arms-bearing and voting population. Choose between these two! Which will you have? It has got to be decided pretty soon, which you will have. The corner-stone of those institutions will not be slavery, in name, but their institutions will be built upon the mud-sills of a debased negro population. Is that public safety? Is it public faith? Are those republican ideas, or republican institutions?

31

In Passage 1, Douglass characterizes Banks's labor policy in Louisiana as

A) inconsistent with Banks's supposed opposition to slavery.

B) contrary to the purpose of the government's abolition of slavery.

C) worse in many respects than the slavery system that it replaced.

D) an improvement over slavery but still far from ideal.

32

As used in line 10, "practically" most nearly means

A) effectively.

B) reasonably.

C) cleverly.

D) partially.

33

In the last paragraph of Passage 1, Douglass rejects a counterargument to one of his claims by

A) using emotional language to describe the suffering that has resulted from the policies supported in the counterargument.

B) citing a universal characteristic that makes it unlikely that the sequence of events suggested in the counterargument would actually occur.

C) pointing out that people who support the counterargument do so out of self-interest rather than because the counterargument is sound.

D) showing that the counterargument offers at best a temporary solution to a problem that requires a permanent solution.

CONTINUE

34

As used in line 46, "disposition" most nearly means

A) habit.
B) placement.
C) settlement.
D) attitude.

35

In Passage 2, the main contrast Dana draws between slavery in antiquity and slavery in the United States is that in antiquity

A) slaves were allowed to choose what kind of work they performed, while in the United States slaves were forced into agricultural and domestic labor.
B) slavery was not based on race and thus former slaves could achieve equality with slaveholders, while in the United States race-based slavery leads some people to view former slaves as inferior.
C) people could be enslaved for a variety of reasons, including race, while in the United States people were enslaved only on the grounds of their race.
D) former slaves were legally inferior but socially equal to slaveholders, while in the United States former slaves are legally equal to former slaveholders but discriminated against socially.

36

Which choice provides the best evidence that Dana believes that the conditions of Southern black men must be improved quickly to avoid negative long-term consequences?

A) Lines 56-59 ("But, my . . . institution")
B) Lines 68-70 ("When . . . them")
C) Lines 70-72 ("And yet . . . all")
D) Lines 81-85 ("It has . . . population")

37

As used in line 60, "fired" most nearly means

A) dismissed.
B) illuminated.
C) propelled.
D) roused.

38

Both Douglass and Dana make the point that the abolition of slavery in the United States was

A) necessary to prevent additional civil conflicts from arising.
B) insufficient to ensure true freedom and equality for black men.
C) undermined by Banks's forced labor policies.
D) the fulfillment of the founding ideals of the United States.

CONTINUE

39

Based on the two passages, Douglass and Dana differ in their views of the effect of the Civil War in that Douglass believes that the war has

A) created a political climate in which the extension of black men's rights seems more feasible, while Dana believes that such an extension faces opposition from those who blame black men for the South's defeat.

B) harmed the employment prospects of black men, while Dana believes that Southerners are beginning to recognize the important role black workers can play in the postwar economy.

C) led white Southerners to oppose equal rights for black men more strongly than before, while Dana believes the war has encouraged white Southerners to see black men as their equals.

D) created a brief period in which white voters might expand the rights of black men, while Dana believes that the rights of black men will not be expanded until memories of the war begin to fade.

40

Based on Passage 1, Douglass would most likely respond to Dana's comments in lines 72-74, Passage 2, by stating that

A) Dana's mentioning of the many injustices that black men endure is highly insensitive.

B) the conditions that Dana points out that black men experience constitute a form of slavery.

C) Dana should not assume that black men will continue to be satisfied with limited rights.

D) Dana is wrong to assume that slavery will remain illegal in former slave states.

41

Which choice from Passage 1 provides the best evidence for the answer to the previous question?

A) Lines 1-4 ("I hold . . . delusion")

B) Lines 15-18 ("It defeats . . . people")

C) Lines 22-24 ("I am . . . Union")

D) Lines 24-29 ("Without . . . right")

CONTINUE

Questions 42-52 are based on the following passage and supplementary material.

This passage and accompanying figures are adapted from Sam Hardman, "Gouldian Finches' Head Colour Reflects Their Personality." ©2012 by Ecologica.

In order to determine if head colour really does indicate personality traits in Gouldian finches, researcher Leah Williams and her colleagues tested a number of predictions. First they looked at pairs of black-headed birds, which were expected to show less aggression towards each other than pairs of red-headed birds. This makes sense since red-headed birds had previously been found to exhibit higher levels of aggression.

The second prediction was that red-headed birds should be bolder, more explorative and take more risks than black-headed birds. This hypothesis is based on previous studies of other species that have shown a correlation between aggression and these behavioural characteristics. However, there is another possibility. Red-headed birds could take fewer risks for two reasons: first, they may be more conspicuous to predators due to their bright colouration and second, it may pay black-headed birds to take more risks and be more explorative so they find food resources before the dominant red-headed birds do.

In order to test the first prediction, paired birds of matching head colour were moved into an experimental cage without food. After one hour of food deprivation a feeder was placed into the corner of the cage where there was only enough room for one bird to feed at a time. Aggressive interactions such as threat displays and displacements were then counted over a 30-minute period. The results were striking. Red-headed birds were significantly and consistently more aggressive than black-headed birds.

To test the birds' willingness to take risks, the researchers deprived the birds of food for one hour before the birds' feeder was replaced. After the birds had calmly begun to feed, a silhouette of an avian predator was moved up and down in front of the cage to scare the birds from the feeder. The time it took for them to return to the feeder was taken as a measure of their willingness to take risks. Birds that returned quickly were considered to be greater risk takers than those that were more cautious.

This time the results were surprising. Red-headed birds were considerably more cautious than those with black heads at returning to the feeder after a "predator" had been introduced. They took on average four times longer to begin feeding again than the less aggressive black-headed birds.

Finally, the researchers investigated the birds' interest in novel objects or "object neophilia," which is defined in the paper as "exploration in which investigation is elicited by an object's novelty." To do this a bunch of threads were placed on a perch within the cage. The time taken for the birds to approach the threads within one body length and to touch them was recorded over a one-hour period. In line with the results from the risk-taking experiment it was found that the aggressive red-headed birds showed less interest in novel objects than did black-headed birds. The difference is not as striking as it was in the previous experiments but was statistically significant nonetheless.

These experiments were repeated after a two-month interval and showed that different birds differed in their responses but the responses of individual birds were consistent over time. Head colour was found to predict the behavioural responses of the birds. Red-headed birds were more aggressive than black-headed birds but took fewer risks and were not explorative.

What is surprising about these results is that aggression does not correlate with risk-taking behaviour. However, the researchers do provide a convincing explanation, suggesting that red colouration has been found to be conspicuous against natural backgrounds, and more conspicuous birds have been found to suffer higher predation rates. Thus, selection could favour more conspicuous red-headed birds taking fewer risks.

Interestingly, boldness [in investigating novel objects] and risk-taking behaviours were found to be strongly correlated: regardless of head colour they always occurred together, forming a "behavioural syndrome." This implies that there is selection in favour of specific combinations of traits and of head colour in relation to those traits. Selection favours aggression in red-headed birds and the boldness/risk-taking behavioural syndrome in black-headed birds. This makes sense when you consider the high

CONTINUE

risk of predation faced by red-headed birds if they take too many risks and the need for black-headed birds to find food away from the dominant redheads, which occupy the safest foraging locations.

Figure 1

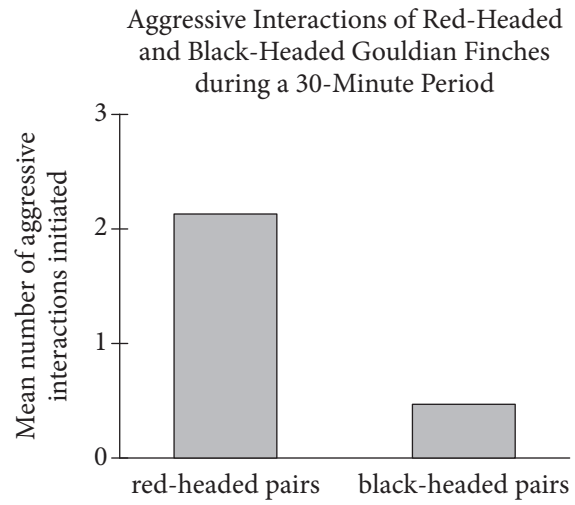
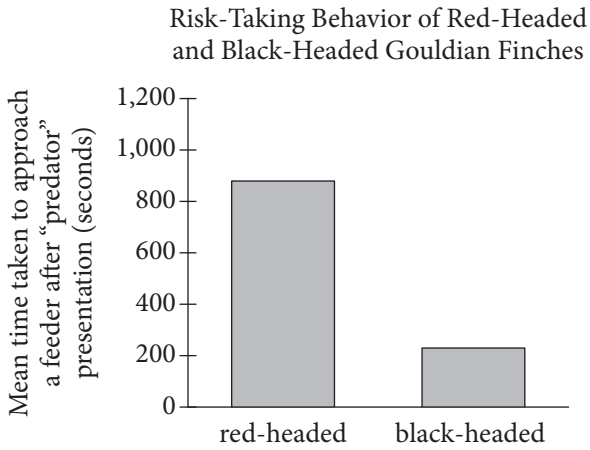


Figure 2



42

The main purpose of the passage is to

A) examine various strategies that are used by a bird species to defend against predatory attacks.

B) draw attention to research that expands our knowledge of the behavior of a bird species.

C) emphasize the importance of a researcher's study that considers a topic that others have openly dismissed.

D) suggest that similarities between bird and other animal behaviors are evidence of a common ancestry.

43

It can reasonably be inferred that the second prediction tested by Williams and her colleagues reflects which assumption?

A) Risk taking is more beneficial to black-headed finches than to red-headed ones.

B) Aggressive behaviors in black- and red-headed finches will be comparable.

C) Observed correlations between certain behaviors in one species translate to other species.

D) Innate and acquired behaviors in birds are often difficult to distinguish.

44

The author uses the word "displacements" in line 29 most likely to suggest that one bird

A) replaces the other in a scale of social dominance.

B) intimidates the other so that it flees the cage.

C) fights the other until one signals submission.

D) jostles the other aside to access the food supply.

45

Information in the passage indicates that the purpose of the quotation marks around the word "predator" in line 47 is to

A) imply that the predator was not notably dangerous.

B) indicate that the predator was actually a simulation.

C) show that the predator was used in multiple experiments.

D) reinforce the disruptive nature of the predator's presence.

46

It can reasonably be inferred from the passage that it would be atypical for an individual red-headed finch to

A) resume feeding relatively slowly after a predator display one week and resume just as slowly the next.

B) approach novel objects without hesitation one week but entirely avoid them the next.

C) return to feeding after a predator display consistently faster than another red-headed finch.

D) display aggression one week and continue to display aggression the next.

47

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

A) Lines 55-57 ("The time . . . period")

B) Lines 61-63 ("The difference . . . nonetheless")

C) Lines 64-67 ("These . . . time")

D) Lines 69-71 ("Red-headed . . . explorative")

48

Based on the passage, which choice reflects behaviors UNLIKELY to be exhibited by an individual finch?

A) Returning quickly to feeding after a predator display and failing to approach a novel object

B) Returning slowly to feeding after a predator display and failing to approach a novel object

C) Failing to display aggression and readily approaching a novel object

D) Displaying aggression and being uninterested in exploring new surroundings

49

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

A) Lines 72-74 ("What . . . behaviour")

B) Lines 79-80 ("Thus . . . risks")

C) Lines 81-85 ("Interestingly . . . syndrome")

D) Lines 90-94 ("This . . . locations")

50

The author indicates that a possible reason for black-headed finches' risk-taking behavior is that

A) they are less interested in novelty than are red-headed finches.

B) their conspicuous coloring requires them to be bold when encountering prey.

C) they are more likely to attract predators if they behave more aggressively.

D) they struggle to obtain food at the safer locations favored by red-headed finches.

CONTINUE

51

According to figure 1, which of the following is closest to the mean number of aggressive interactions initiated in pairs of red-headed finches in a 30-minute period?

A) 0.5
B) 1
C) 1.5
D) 2

52

The information in figure 2 indicates that, on average, a black-headed finch approached a feeder in approximately how many seconds after a "predator" presentation?

A) 200
B) 400
C) 600
D) 800

STOP

If you finish before time is called, you may check your work on this section only. Do not turn to any other section.

Writing and Language Test

35 MINUTES, 44 QUESTIONS

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

DIRECTIONS

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

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

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

Questions 1-11 are based on the following passage.

Benjamin Banneker: Marking Time

Benjamin Banneker gained local fame for making a working clock in 1753, a time when few people owned clocks, let alone understood 1 they're mechanics. A twenty-two-year-old free black man living in Maryland, Banneker learned how to make the clock by examining the insides of a watch a merchant friend had lent him. His sharp skills in measuring the passage of time would eventually lead Banneker to the job of determining the official borders of the new United States capital.

1

A) NO CHANGE
B) their
C) it's
D) its

CONTINUE

Studious from an early age, Banneker completed his formal education only up through algebra, at which point his father pulled him out of school to help on the family farm. A former teacher, however, encouraged Banneker to pursue his education independently and lent him the books to do so. Banneker also studied the night **2** sky, he charted how the migration of the stars relates to the passage of time.

3 When the wealthy Ellicott family built a flour mill not far from his farm, Banneker befriended George **4** Ellicott. Ellicott's knowledge about science and astronomy impressed him. They met regularly at the flour mill and **5** Banneker's home, where they met to discuss debates in astronomy. From Ellicott, Banneker borrowed books by authors such as James Ferguson, a leading astronomer of the time.

2

A) NO CHANGE
B) sky. Charting
C) sky, charting
D) sky, he also charted

3

Which choice most effectively establishes the main topic of the paragraph?

A) In the 1770s, Banneker made a fortuitous friendship.
B) The 1770s were filled with social and political upheaval.
C) Banneker's life was significantly influenced by several people.
D) Banneker continued his studies in science and math.

4

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

A) Ellicott of whom
B) Ellicott, from whom his
C) Ellicott, while Ellicott's
D) Ellicott, whose

5

A) NO CHANGE
B) at Banneker's home, meeting
C) Banneker's home
D) Banneker's home, meeting

CONTINUE

[1] In that same decade, the United States became a fledgling nation with no permanent capital. [2] Federal legislators met in eight different northern cities before they decided that, as part of a broader compromise, a capital should be built farther south. [3] His cousin George likely recommended Banneker for the job. [4] In 1791 President Washington issued a directive: the capital would be situated on the Potomac River and encompass a ten-mile square that included the booming ports of Georgetown, then a part of Maryland, and Alexandria, Virginia. [5] Leading the team to determine the capital's boundaries **6** <u>were</u> Major Andrew Ellicott, a well-known land surveyor who needed a capable assistant. [6] Land surveying, the art of measuring horizontal and vertical distances between objects, demands a strong command of trigonometry and astronomy, **7** <u>particularly to</u> the ability to chart mathematically the course of celestial bodies in relation to the curvature of the rotating Earth—skills Banneker possessed. **8**

6

A) NO CHANGE
B) will be
C) have been
D) was

7

A) NO CHANGE
B) particular about
C) particularly
D) in particularly

8

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

A) where it is now.
B) after sentence 4.
C) after sentence 5.
D) after sentence 6.

CONTINUE

Banneker and the rest of Major Ellicott's crew set up camp on Jones Point in early March 1791. A peninsula extending into the Potomac River, the point offered an expansive view of the territory. **9** Additionally, a National Park Service plaque at Jones Point **10** commemorates the men's contributions in shaping the capital. On a clear day, looking north across the water, visitors can see the domed Capitol Building rising toward the sky. **11**

9

A) NO CHANGE
B) Not surprisingly,
C) After some time,
D) Today,

10

A) NO CHANGE
B) memorizes
C) magnifies
D) fossilizes

11

At this point, the writer is considering adding the following sentence.

> Visitors to Jones Point can also enjoy activities such as fishing and kayaking.

Should the writer make this addition here?

A) Yes, because it contributes to the description of Jones Point as it is in the present.
B) Yes, because it encourages readers to visit a place of historical importance.
C) No, because it strays from the paragraph's focus on Banneker's publications.
D) No, because it tacks on irrelevant information at the end of the passage.

CONTINUE

Questions 12-22 are based on the following passage.

Energy Storage Under Pressure

Renewable energy **12** sources pose a challenge for the businesses and utilities that use them: the need to store surplus energy to use later, during times **13** of peak demand. For example, wind fluctuates and generally produces more energy during the night, when demand is lower. Conversely, solar power generates most of its electricity during the day and provides little power at night. A method of storage called Compressed Air Energy Storage (CAES) **14** is one method that may be one of the best solutions to this problem.

12

The writer is considering revising the underlined portion to the following.

> sources, such as hydropower, wind power, and solar power,

Should the writer make this revision here?

A) Yes, because it sets up how the information in the passage will be structured.
B) Yes, because it offers examples that clarify a key term in the passage.
C) No, because it groups together examples that are too different to be of use to the passage.
D) No, because it conflicts with information presented later in the sentence.

13

A) NO CHANGE
B) for peak
C) of peeked
D) for peaked

14

A) NO CHANGE
B) is a particular means of storage that
C) constitutes a form of storage that
D) DELETE the underlined portion.

CONTINUE

[1] Power plants with CAES systems use surplus energy produced during off-peak hours to pump air into large underground cavities, such as naturally occurring or human-made salt or rock caverns. [2] The expanding air drives a turbine, generating electricity. [3] The walls of these spaces have been specially fortified to handle the high pressure and density of pressurized air. [4] As air is pumped into the inflexible cavern, the pressure increases to 1,100 pounds per square inch. [5] When energy is needed later, the power plant releases pressurized air from the cavity, causing the air to expand. **15**

15

To make this paragraph most logical, sentence 2 should be placed

A) where it is now.

B) after sentence 3.

C) after sentence 4.

D) after sentence 5.

Currently, only two power plants use **16** CAES; one in McIntosh, Alabama, and another in Huntorf, Germany. The McIntosh power plant can produce up to 110 megawatts of electrical **17** power, the German plant can produce 321 megawatts. **18** Combined, that's enough energy to service approximately 431,000 homes. There are a few other CAES projects in progress across the United States, including pilot projects in Ohio, California, and New Jersey.

16

A) NO CHANGE
B) CAES. One
C) CAES: one
D) CAES, one:

17

A) NO CHANGE
B) power, as well as
C) power, and
D) power; while

18

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

A) Kept, because it shows the impact of the two CAES plants currently in use.
B) Kept, because it provides a transition to another point about how to provide electricity to homes.
C) Deleted, because it ignores differences in the levels of energy usage of individual homes.
D) Deleted, because it interrupts the paragraph's description of the McIntosh facility.

CONTINUE

There are a number of reasons that so few CAES units have been built, despite the fact that CAES is one of only a few reliable ways to store energy from renewable energy sources. First, huge underground cavities are possible only in certain types of land. Second, even where these formations exist, reinforcing them and building the infrastructure for **19** CAES, can cost upwards of $100 million. Finally, traditional methods of CAES **20** requires heat to compress the air, which can lower the energy efficiency of the process.

Though the system is initially expensive and involves an expenditure of energy, CAES has proven to be reliable and economically viable in the long term. Furthermore, researchers have developed methods of CAES that reach much better efficiency levels by **21** apprehending the heat required to compress the air and reusing it to heat the decompressing air. These methods can be used in CAES units built in the future. Given the growing shift to renewable energy, **22** the only stumbling blocks to additional innovations may be national energy policies that make potential investors hesitate.

19

A) NO CHANGE
B) CAES;
C) CAES
D) CAES—

20

A) NO CHANGE
B) had required
C) does require
D) require

21

A) NO CHANGE
B) capturing
C) arresting
D) seizing

22

The writer wants a conclusion that restates the main idea of the passage. Which choice most effectively accomplishes this goal?

A) NO CHANGE
B) CAES is a promising solution to one of alternative energy's biggest challenges.
C) it is dismaying that CAES technology is not yet as efficient as it could be.
D) residential applications of CAES technology—in addition to large operations—are likely to become feasible soon.

CONTINUE

Questions 23-33 are based on the following passage.

A Man of Many Words

In 1747 the author Samuel 23 Johnson announced an ambitious plan for a new English-language dictionary. He did so with the encouragement of a group of London booksellers. Johnson's goal was to produce an authoritative guide to the language "by which its purity may be preserved." The completed *Dictionary of the English Language* finally appeared in 24 1755, its release was every bit the publishing event that the writer and his backers had imagined. Along 25 one's laborious journey from planning to publication, however, Johnson's *Dictionary* had become a book with more humble ambitions—one that no longer aspired to preserve the purity of the language. Johnson had come to realize that, like all languages, the English language was a living, changing thing that could not be preserved, only described.

23

Which choice best combines the sentences at the underlined portion?

A) Johnson announced an ambitious plan for a new English-language dictionary and was encouraged by a group of London booksellers.

B) Johnson, announcing an ambitious plan for a new English-language dictionary, was encouraged by a group of London booksellers.

C) Johnson announced an ambitious plan for a new English-language dictionary; he was encouraged in this by a group of London booksellers.

D) Johnson, encouraged by a group of London booksellers, announced an ambitious plan for a new English-language dictionary.

24

A) NO CHANGE

B) 1755, and

C) 1755, as

D) 1755 with

25

A) NO CHANGE

B) each one's

C) it's

D) its

CONTINUE

Johnson had begun his work in 1746, furnishing his house with several large tables and massive heaps of books. To provide examples of proper word use for his *Dictionary*, Johnson looked to those he considered the **26** hotshot experts on the English language: the leading English writers of the past and present. Johnson read through the works of hundreds of **27** writers, his marking the passages he viewed as exemplary. He then handed the books off to six scribes he had hired to copy out his chosen excerpts.

28 Johnson was extremely selective in the passages he used to illustrate his words. No earlier English lexicographer, or dictionary writer, had attempted to define words as precisely as Johnson did. However, Johnson's careful analysis of his sources revealed subtle but inexorable changes in the ways words were used by different writers at different times. When the *Dictionary* was published in 1755, Johnson's preface **29** acknowledged this inherent mutability of language, noting that no lexicographer "shall imagine that his dictionary can embalm his language, and secure it from corruption and decay."

26

A) NO CHANGE
B) foremost
C) big-name
D) primo

27

A) NO CHANGE
B) writers,
C) writers, and
D) writers by

28

Which choice best introduces the topic of this paragraph?

A) NO CHANGE
B) It is unknown precisely how much work Johnson's scribes did beyond copying down passages.
C) Johnson was not the first writer to create a dictionary of the English language.
D) Next, Johnson undertook the more difficult task of composing definitions.

29

Which choice best sets up the quotation from Johnson later in the sentence?

A) NO CHANGE
B) bemoaned the low status of dictionary writers,
C) explained how the writer determined which words to include,
D) stated that the quotations were carefully chosen for their style or subject matter,

This recognition did not mean that Johnson had no opinions about how words should be used. On the contrary, Johnson **30** used the *Dictionary* to promote words he favored and to protest words he disliked. **31** In the definition for "pictorial," a term coined by Sir Thomas Browne, Johnson described the word as one "not adopted by other writers, but elegant and useful." **32** By the same token, the word "writative," which Johnson had found in the letters of Alexander Pope, was not even granted a definition; Johnson simply wrote "A word of Pope's coining: not to be imitated." Johnson understood that he could not preserve his language—but he **33** could—at the very least, try to shape its future use. In that more modest goal he appears to have succeeded: Johnson's work stood as the definitive English dictionary for well over a century, influencing generations of English writers and readers.

30

A) NO CHANGE
B) had used
C) will use
D) uses

31

At this point, the writer is considering adding the following sentence.

> When it was finished, Johnson's *Dictionary* contained 42,773 words, which made it neither the longest nor the shortest dictionary of the eighteenth century.

Should the writer make this addition here?

A) Yes, because it provides relevant contextual information about eighteenth-century dictionaries.
B) Yes, because it puts in perspective just how many words Johnson had influence over.
C) No, because it interrupts the discussion of how Johnson used his *Dictionary* to affect the English language.
D) No, because it merely repeats information about Johnson's *Dictionary* that appears earlier in the passage.

32

A) NO CHANGE
B) On the other hand,
C) For example,
D) Nevertheless,

33

A) NO CHANGE
B) could, at the very least—
C) could, at the very least,
D) could; at the very least,

CONTINUE

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

Retailers Profit from Paying Well

Many retailers rely on discount prices to attract customers, and these companies' executives and managers often assume that they must maintain low employee costs to preserve these discounts. However, in recent years, several retailers have challenged this **34** conventional wisdom, offering better-than-average wages and **35** benefits, and they have done so, while keeping costs down and performing well financially.

The cost of better compensation for employees is lower than many employers may realize. A 2012 study by Demos, a public policy research and advocacy organization, noted that if retail workers' annual earnings were increased so that on average the lowest-paid workers received a 27 percent raise, the additional cost to employers would amount to only 0.5 percent of total retail sales. **36** Stores could increase their prices to make up for this expenditure. The additional cost to consumers if they did so would average 30 cents per shopping trip—hardly enough to keep most customers away.

34

A) NO CHANGE
B) habitual
C) routine
D) accustomed

35

A) NO CHANGE
B) benefits—and they have done so
C) benefits: and they have done so,
D) benefits and they have done so,

36

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

A) If stores increased their prices to make up for this expenditure, the additional cost to consumers
B) Increasing their prices to make up for this expenditure, stores could make an additional cost to consumers that
C) The additional cost to consumers to make up for this expenditure would be increased store prices so that they
D) If the additional cost to consumers made up for this expenditure by increasing store prices, it

CONTINUE

Yet this modest price increase would probably be unnecessary because increasing pay at retail businesses increases sales performance. When Professor Zeynep Ton at the Massachusetts Institute of Technology compared two chains of warehouse club 37 stores—one with better-than-average pay and benefits and another with lower employee wages, she found that the average number of sales per employee at the higher-wage club store was double 38 the employees at the lower-wage club store. According to Ton's study, well-paid workers were friendlier and more helpful to customers, and they were more knowledgeable about the company's products. As a result of their experiences with these employees, customers were more likely to make purchases.

37

A) NO CHANGE
B) stores,
C) stores:
D) stores;

38

A) NO CHANGE
B) the ones
C) the number
D) DELETE the underlined portion.

By contrast, many employees at retail stores that pay average or below-average wages quit each year, a phenomenon known as employee turnover, forcing these businesses to rely on inexperienced workers and to devote resources to finding, hiring, and training new workers. **39** When examined, the same pair of club stores that Ton studied, Professor Wayne F. Cascio of the University of Colorado found that **40** full-time employees at the lower-paying club store make an average of $17 per hour, which costs the firm an estimated $5,274 per full-time employee. He found that the turnover rate at the higher-paying club store, however, was lower— **41** the firm's 67,600 full-time employees made an average of $17 per hour.

Comparison of Two Warehouse Club Store Chains

	Total full-time employees	Estimated average hourly wage	Annual full-time employee turnover rate	Annual estimated cost of turnover per full-time employee
Company A	110,200	$10	44%	$5,274
Company B	67,600	$17	17%	$3,628

Source: Data from Wayne F. Cascio, "The High Cost of Low Wages."

39

A) NO CHANGE
B) An examination of
C) When they examined
D) Examining

40

Which choice provides accurate information from the table to support the writer's argument?

A) NO CHANGE
B) 44 percent of full-time employees at the lower-paying club store leave their jobs each year,
C) 110,200 full-time employees at the lower-paying club store leave their jobs each year,
D) full-time employees at the lower-paying club store make an average of $5,274 each year,

41

The writer wants to include relevant information from the table to illustrate the point made in the first part of the sentence. Which choice best accomplishes this goal?

A) NO CHANGE
B) and its staff, at 67,600 full-time employees, was significantly smaller.
C) 17 percent, at a lesser cost of $3,628 per full-time employee.
D) and it paid its full-time employees $17 per hour compared with its competitor's $10 per hour.

CONTINUE

The club store chains that Ton and Cascio studied 42 are both successful. Grocery stores, convenience stores, and numerous other businesses have been able to thrive in their respective industries while paying significantly higher employee wages than their rivals. The success of these businesses 43 highlight that paying workers well 44 can be a profitable strategy for retailers.

42

Which choice best introduces the information that follows?

A) NO CHANGE
B) have large workforces.
C) are not unique.
D) are managed differently.

43

A) NO CHANGE
B) have highlighted
C) would highlight
D) highlights

44

Which choice provides the most logical conclusion to the passage?

A) NO CHANGE
B) may be surprisingly difficult to implement.
C) is one of several ways to boost employee morale.
D) is still the subject of much debate among employers.

STOP

If you finish before time is called, you may check your work on this section only. Do not turn to any other section.

Math Test – No Calculator

25 MINUTES, 20 QUESTIONS

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

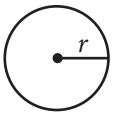
DIRECTIONS

For questions 1-15, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. **For questions 16-20**, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 16 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

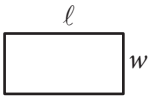
NOTES

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

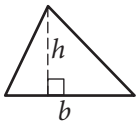
REFERENCE



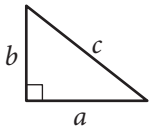
$A = \pi r^2$
$C = 2\pi r$



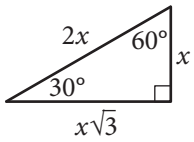
$A = \ell w$

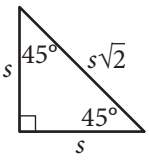


$A = \frac{1}{2}bh$

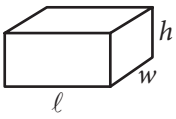


$c^2 = a^2 + b^2$

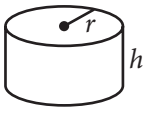




Special Right Triangles

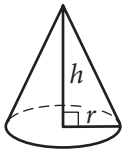


$V = \ell wh$

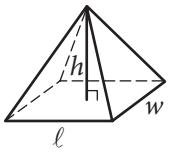


$V = \pi r^2 h$

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



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



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

The number of degrees of arc in a circle is 360.
The number of radians of arc in a circle is 2π.
The sum of the measures in degrees of the angles of a triangle is 180.

CONTINUE

1

$$x + y = 21$$
$$x - 2y = -3$$

According to the system of equations above, what is the value of x ?

A) 6

B) 8

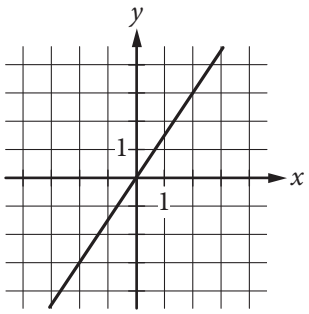
C) 13

D) 15

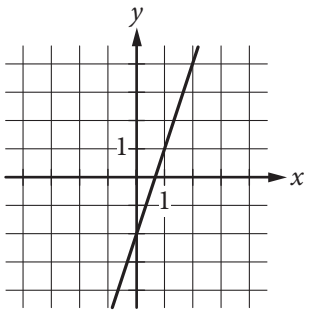
2

Which of the following is the graph of the equation $y = 3x - 2$ in the xy-plane?

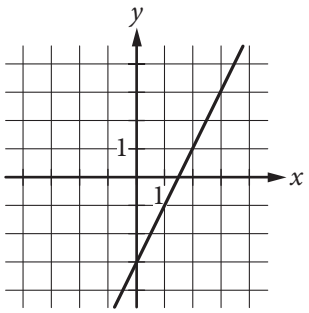
A)



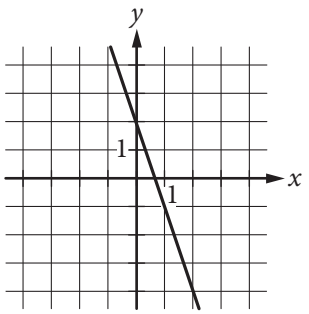
B)



C)



D)



CONTINUE

3

Which of the following expressions is equivalent to $x^2 + 10x + 21$?

A) $(x + 1)(x + 9) + 12$

B) $(x + 1)(x + 9) + 12x$

C) $(x + 3)(x + 7) + 5$

D) $(x + 3)(x + 7) + 5x$

4

$$y \geq -2x + 11$$

$$y > 3x - 9$$

In the xy-plane, point A is contained in the graph of the solution set of the system of inequalities above. Which of the following could be the coordinates of point A ?

A) $(2, 1)$

B) $(4, 1)$

C) $(4, 5)$

D) $(6, 6)$

5

In the xy-plane, line ℓ passes through the points $(0, 1)$ and $(1, 4)$. Which of the following is an equation of line ℓ ?

A) $y = \frac{1}{3}x + 1$

B) $y = \frac{1}{3}x - 1$

C) $y = 3x + 1$

D) $y = 3x - 1$

6

$$\sqrt{x + 28} - 2\sqrt{x + 1} = 0$$

What value of x satisfies the equation above?

A) 8

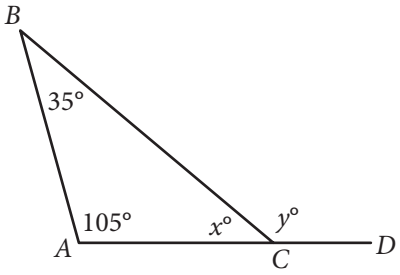
B) 9

C) 26

D) 27

CONTINUE

7



In triangle ABC above, side $\overline{AC}$ is extended to point D. What is the value of $y - x$?

A) 40
B) 75
C) 100
D) 140

8

In the xy-plane, the point $(2, 6)$ lies on the graph of $y = \frac{k}{x}$, where k is a constant. Which of the following points must also lie on the graph?

A) $(1, 3)$
B) $(1, 4)$
C) $(3, 3)$
D) $(3, 4)$

9

$$Q = \sqrt{\frac{2dK}{h}}$$

The formula above is used to estimate the ideal quantity, Q, of items a store manager needs to order given the demand quantity, d; the setup cost per order, K; and the storage cost per item, h. Which of the following correctly expresses the storage cost per item in terms of the other variables?

A) $h = \sqrt{\frac{2dK}{Q}}$

B) $h = \frac{\sqrt{2dK}}{Q}$

C) $h = \frac{2dK}{Q^2}$

D) $h = \frac{Q^2}{2dK}$

10

$$8x - 2x(c + 1) = x$$

In the equation above, c is a constant. If the equation has infinitely many solutions, what is the value of c ?

A) $\frac{3}{2}$

B) $\frac{5}{2}$

C) $\frac{7}{2}$

D) $\frac{9}{2}$

CONTINUE

11

$$2{,}000 - 61k = 48$$

In 1962, the population of a bird species was 2,000. The population k years after 1962 was 48, and k satisfies the equation above. Which of the following is the best interpretation of the number 61 in this context?

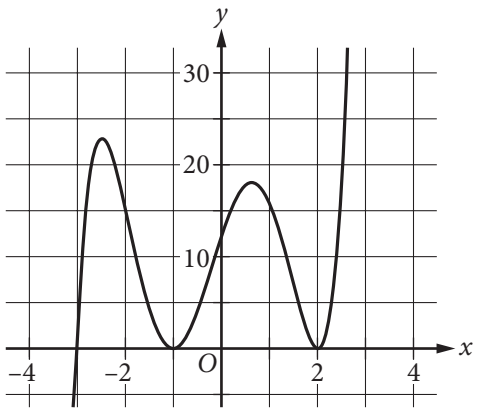
A) The population k years after 1962

B) The value of k when the population was 48

C) The difference between the population in 1962 and the population k years after 1962

D) The average decrease in the population per year from 1962 to k years after 1962

12



The graph of the function f is shown in the xy-plane above, where $y = f(x)$. Which of the following functions could define f?

A) $f(x) = (x-3)(x-1)^2(x+2)^2$

B) $f(x) = (x-3)^2(x-1)(x+2)$

C) $f(x) = (x+3)(x+1)^2(x-2)^2$

D) $f(x) = (x+3)^2(x+1)(x-2)$

13

$$(x+2)^2 + (y-3)^2 = 40$$

$$y = -2x + 4$$

Which of the following could be the x-coordinate of a solution to the system of equations above?

A) $\sqrt{7}$

B) $\frac{\sqrt{35}}{2}$

C) $\frac{6 + 2\sqrt{34}}{5}$

D) $\frac{4 + \sqrt{191}}{5}$

CONTINUE

14

$$P = 215(1.005)^{\frac{t}{3}}$$

The equation above can be used to model the population, in thousands, of a certain city t years after 2000. According to the model, the population is predicted to increase by 0.5% every n months. What is the value of n ?

A) 3

B) 4

C) 12

D) 36

15

Which of the following is an equivalent form of the expression $(2x-2)^2-(2x-2)$?

A) $2x^2-6x+6$

B) $4x^2-10x+2$

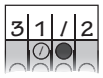
C) $(2x-2)(2x-2)$

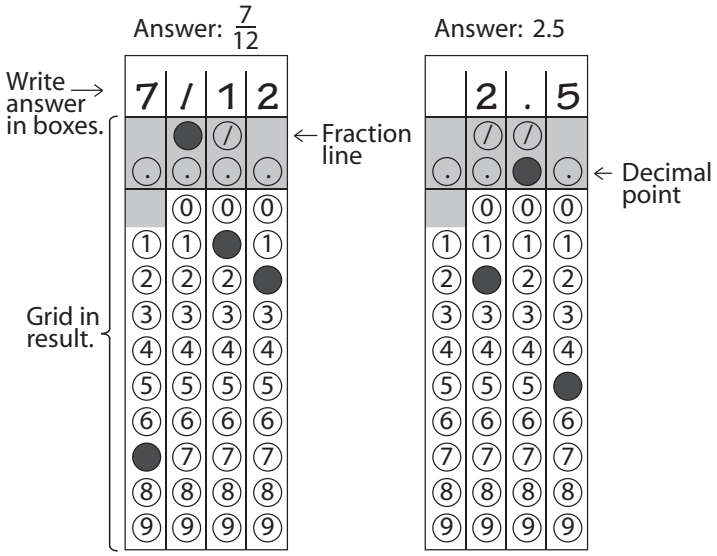
D) $(2x-3)(2x-2)$

CONTINUE

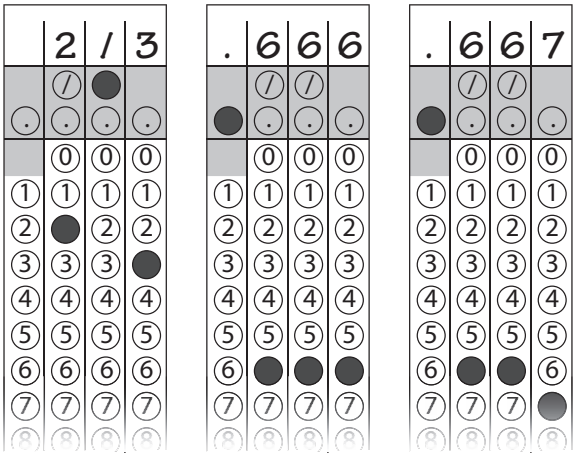
DIRECTIONS

For questions 16-20, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

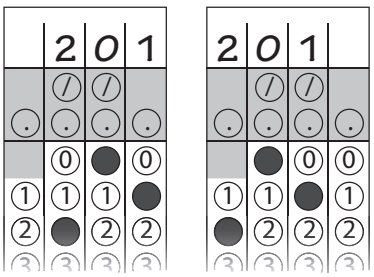
1. Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
2. Mark no more than one circle in any column.
3. No question has a negative answer.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



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



Answer: 201 – either position is correct



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

CONTINUE

16

$$2s + t = 11$$

In the equation above, what is the value of s when $t = -1$?

17

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

What is one possible solution to the equation above?

18

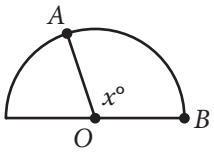
In the complex number system, what is the value of the expression $16i^4 - 8i^2 + 4$? (Note: $i = \sqrt{-1}$)

19

x	$f(x)$
8	12
12	17

The table above shows two pairs of values for the linear function f. The function can be written in the form $f(x) = ax + b$, where a and b are constants. What is the value of $a + b$?

20



Segments $\overline{OA}$ and $\overline{OB}$ are radii of the semicircle above. Arc $\overset{\frown}{AB}$ has length 3π and $OA = 5$. What is the value of x ?

STOP

If you finish before time is called, you may check your work on this section only. Do not turn to any other section.

Math Test – Calculator

55 MINUTES, 38 QUESTIONS

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

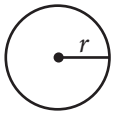
DIRECTIONS

For questions 1-30, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. **For questions 31-38**, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 31 on how to enter your answers in the grid. You may use any available space in your test booklet for scratch work.

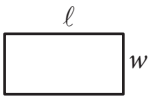
NOTES

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

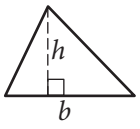
REFERENCE



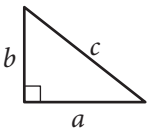
$A = \pi r^2$
$C = 2\pi r$



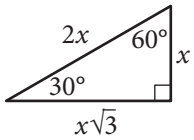
$A = \ell w$

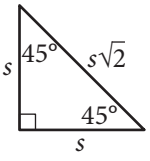


$A = \frac{1}{2}bh$

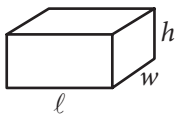


$c^2 = a^2 + b^2$

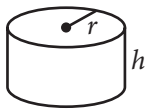




Special Right Triangles

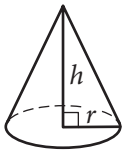


$V = \ell wh$

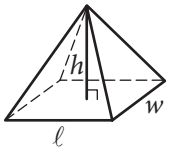


$V = \pi r^2 h$

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



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



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

The number of degrees of arc in a circle is 360.
The number of radians of arc in a circle is 2π.
The sum of the measures in degrees of the angles of a triangle is 180.

CONTINUE

1

If $6 \cdot 2k = 36$, what is the value of $4k - 2$?

A) 12

B) 10

C) 6

D) 1

2

The number of people who rode a certain bus each day of a week is shown in the table below.

Day	Number of riders
Monday	612
Tuesday	798
Wednesday	655
Thursday	773
Friday	808
Saturday	480
Sunday	229

Which of the following is true based on these data?

A) The bus had the most riders on Tuesday.

B) Each day from Tuesday through Sunday, the number of riders on the bus was greater than the previous day.

C) Each day from Tuesday through Sunday, the number of riders on the bus was less than the previous day.

D) The two days with the fewest number of riders were Saturday and Sunday.

3

A physician prescribes a treatment in which a patient takes 2 teaspoons of a medication every 6 hours for 5 days. According to the prescription, how many teaspoons of the medication should the patient take in a 24-hour period?

A) 4

B) 6

C) 8

D) 40

CONTINUE

4

One hundred park-district members will be selected to participate in a survey about selecting a new park-district coordinator. Which of the following methods of choosing the 100 members would result in a random sample of members of the park district?

A) Obtain a numbered list of all park-district members. Use a random number generator to select 100 members from the list. Give the survey to those 100 members.

B) Obtain a list of all park-district members sorted alphabetically. Give the survey to the first 100 members on the list.

C) Tell all park-district members that volunteers are needed to take the survey. Give the survey to the first 100 members who volunteer.

D) Obtain a list of all park-district members who are attending an upcoming event. Give the survey to the first 100 members on the list.

5

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

Which of the following expressions is equivalent to the expression above?

A) $4x^2$

B) $2x^2 + 2x$

C) $2x^3 + 2x^2$

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

6

If $x + 3 = 2x - 2$, what is the value of $x - 4$?

A) 9

B) 5

C) 4

D) 1

CONTINUE

7

The functions f and g are defined by $f(x) = 4x$ and $g(x) = x^2$. For what value of x does $f(x) - g(x) = 4$?

A) -2

B) -1

C) 1

D) 2

8

The function g is defined as $g(x) = \frac{2x}{3} + 3$. What is the value of $g(-30)$?

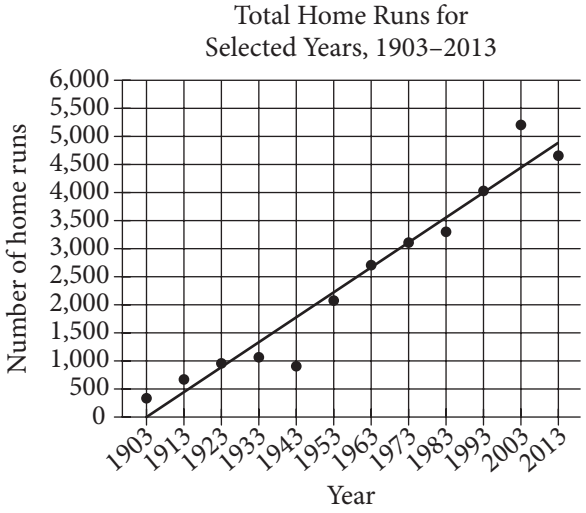
A) -27

B) -23

C) -17

D) -7

9



The scatterplot above shows the total number of home runs hit in major league baseball, in ten-year intervals, for selected years. The line of best fit for the data is also shown. Which of the following is closest to the difference between the actual number of home runs and the number predicted by the line of best fit in 2003?

A) 250

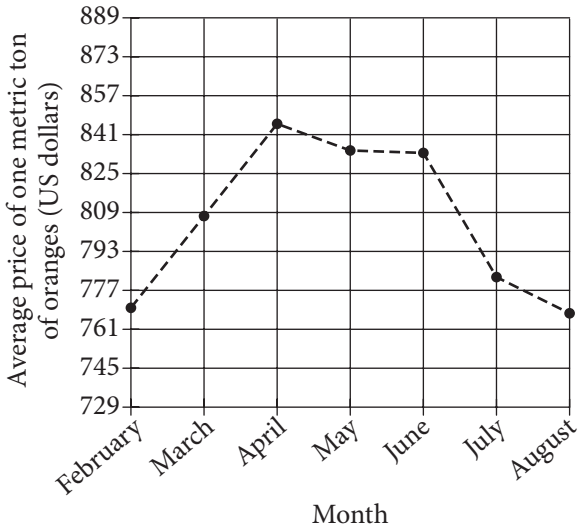
B) 500

C) 750

D) 850

CONTINUE

Questions 10-12 refer to the following information.



The line graph above shows the average price of one metric ton of oranges, in dollars, for each of seven months in 2014.

10

Between which two consecutive months shown did the average price of one metric ton of oranges decrease the most?

A) March to April
B) May to June
C) June to July
D) July to August

11

Which of the following is closest to the median price, in dollars, of the seven recorded prices of one metric ton of oranges?

A) 834
B) 808
C) 783
D) 768

12

In 2014, the average price of one metric ton of oranges decreased by 2.36% from January (not shown) to February. Which of the following is closest to the price of one metric ton of oranges in January 2014?

A) 700
B) 770
C) 790
D) 830

13

	Roof type			
	Asphalt shingle	Slate	Cedar shake	Total
Single story	9	4	2	15
Two story	20	10	3	33
Total	29	14	5	48

The table above shows the distribution of single-story and two-story houses in a neighborhood classified according to roof type. If one of the houses is selected at random, what is the probability that it will be a single-story house with a slate roof?

A) $\frac{4}{48}$

B) $\frac{4}{15}$

C) $\frac{4}{14}$

D) $\frac{14}{48}$

14

$$2x - y = -4$$
$$2x + y = 4$$

For the solution of the system of equations above, what is the value of x ?

A) -4

B) -2

C) 0

D) 2

15

The load capacity of a certain washing machine is 12 pounds. What is the approximate load capacity of the same washing machine, in kilograms?
(1 kilogram = 2.2046 pounds)

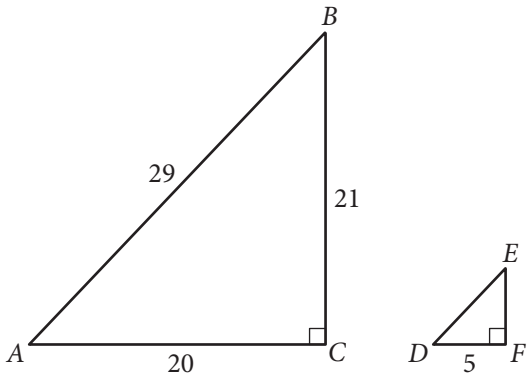
A) 2.2

B) 5.4

C) 9.8

D) 26.5

16



Triangles ABC and DEF above are similar. How much longer than segment EF is segment DE ?

A) 1

B) 2

C) 4

D) 8

CONTINUE

17

Data set A	25,550	40,430	49,150	62,590	73,670	118,780	126,040
Data set B	22,860	55,020	173,730	300,580	358,920	456,170	603,300

Which of the following is true about the standard deviations of the two data sets in the table above?

A) The standard deviation of data set B is larger than the standard deviation of data set A.

B) The standard deviation of data set A is larger than the standard deviation of data set B.

C) The standard deviation of data set A is equal to the standard deviation of data set B.

D) There is not enough information available to compare the standard deviations of the two data sets.

18

The velocity v, in meters per second, of a falling object on Earth after t seconds, ignoring the effect of air resistance, is modeled by the equation $v = 9.8t$. There is a different linear relationship between time and velocity on Mars, as shown in the table below.

Time (seconds)	Velocity on Mars (meters per second)
0	0
4	14.8
8	29.6

If an object dropped toward the surface of Earth has a velocity of 58.8 meters per second after t seconds, what would be the velocity of the same object dropped toward the surface of Mars after t seconds, ignoring the effect of air resistance?

A) 15.9 meters per second

B) 22.2 meters per second

C) 36.2 meters per second

D) 88.8 meters per second

19

In the xy-plane, the graph of line ℓ has slope 3. Line k is parallel to line ℓ and contains the point $(3, 10)$. Which of the following is an equation of line k ?

A) $y = -\frac{1}{3}x + 11$

B) $y = \frac{1}{3}x + 9$

C) $y = 3x + 7$

D) $y = 3x + 1$

20

A certain colony of bacteria began with one cell, and the population doubled every 20 minutes. What was the population of the colony after 2 hours?

A) 6

B) 12

C) 32

D) 64

CONTINUE

21

The circumference of Earth is estimated to be 40,030 kilometers at the equator. Which of the following best approximates the diameter, in miles, of Earth's equator? (1 kilometer ≈ 0.62137 miles)

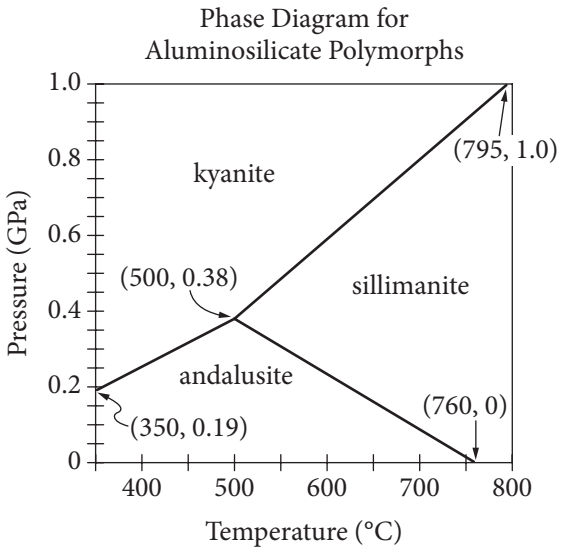
A) 3,205 miles
B) 5,541 miles
C) 7,917 miles
D) 13,004 miles

22

The budget for a school band was $8,000 in 2010. The budget decreased by 15% from 2010 to 2011 and then increased by 22% from 2011 to 2012. Which of the following expressions represents the budget, in dollars, for the school band in 2012?

A) (1.15)(1.22)(8,000)
B) (0.85)(1.22)(8,000)
C) (1.15)(0.78)(8,000)
D) (0.85)(0.78)(8,000)

Questions 23 and 24 refer to the following information.



During mineral formation, the same chemical compound can become different minerals depending on the temperature and pressure at the time of formation. A phase diagram is a graph that shows the conditions that are needed to form each mineral. The graph above is a portion of the phase diagram for aluminosilicates, with the temperature T, in degrees Celsius (°C), on the horizontal axis, and the pressure P, in gigapascals (GPa), on the vertical axis.

CONTINUE

23

$$P = -0.00146T + 1.11$$

An equation of the boundary line between the andalusite and sillimanite regions is approximated by the equation above. What is the meaning of the T-intercept of this line?

A) It is the maximum temperature at which sillimanite can form.

B) It is the temperature at which both andalusite and sillimanite can form when there is no pressure applied.

C) It is the increase in the number of degrees Celsius needed to remain on the boundary between andalusite and sillimanite if the pressure is reduced by 1 GPa.

D) It is the decrease in the number of gigapascals of pressure needed to remain on the boundary between andalusite and sillimanite if the temperature is increased by 1°C.

24

Which of the following systems of inequalities best describes the region where sillimanite can form?

A) $P \geq 0.0021T - 0.67$
$P \geq 0.0013T - 0.25$

B) $P \leq 0.0021T - 0.67$
$P \geq -0.0015T + 1.13$

C) $P \leq 0.0013T - 0.25$
$P \geq -0.0015T + 1.13$

D) $P \leq 0.0013T - 0.25$
$P \leq -0.0015T + 1.13$

25

$$y = 2x + 4$$
$$y = (x - 3)(x + 2)$$

The system of equations above is graphed in the xy-plane. At which of the following points do the graphs of the equations intersect?

A) $(-3, -2)$

B) $(-3, 2)$

C) $(5, -2)$

D) $(5, 14)$

26

The gas mileage $M(s)$, in miles per gallon, of a car traveling s miles per hour is modeled by the function below, where $20 \leq s \leq 75$.

$$M(s) = -\frac{1}{24}s^2 + 4s - 50$$

According to the model, at what speed, in miles per hour, does the car obtain its greatest gas mileage?

A) 46

B) 48

C) 50

D) 75

CONTINUE

27

x	$h(x)$
-1	1
2	7
4	11

The table above shows selected values for the function h. In the xy-plane, the graph of $y = h(x)$ is a line. What is the value of $h(8)$?

A) 15

B) 19

C) 21

D) 22

28

The front row of an auditorium has 10 seats. There are 50 rows in total. If each row has 2 more seats than the row before it, which expression gives the total number of seats in the last row?

A) $10 + 2(50 - 1)$

B) $10 + 2(50)$

C) $50(10 + 2)$

D) $10 + 2^{50}$

29

An ecologist selected a random sample of 30 prairie dogs from a colony and found that the mean mass of the prairie dogs in the sample was 0.94 kilograms (kg) with an associated margin of error of 0.12 kg. Which of the following is the best interpretation of the ecologist's findings?

A) All prairie dogs in the sample have a mass between 0.82 kg and 1.06 kg.

B) Most prairie dogs in the colony have a mass between 0.82 kg and 1.06 kg.

C) Any mass between 0.82 kg and 1.06 kg is a plausible value for the mean mass of the prairie dogs in the sample.

D) Any mass between 0.82 kg and 1.06 kg is a plausible value for the mean mass of the prairie dogs in the colony.

30

A poster has an area of 432 square inches. The length x, in inches, of the poster is 6 inches longer than the width of the poster. Which of the following equations can be solved to determine the length, in inches, of the poster?

A) $x^2 - 6 = 432$

B) $x^2 - 6x = 432$

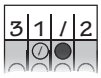
C) $x^2 + 6 = 432$

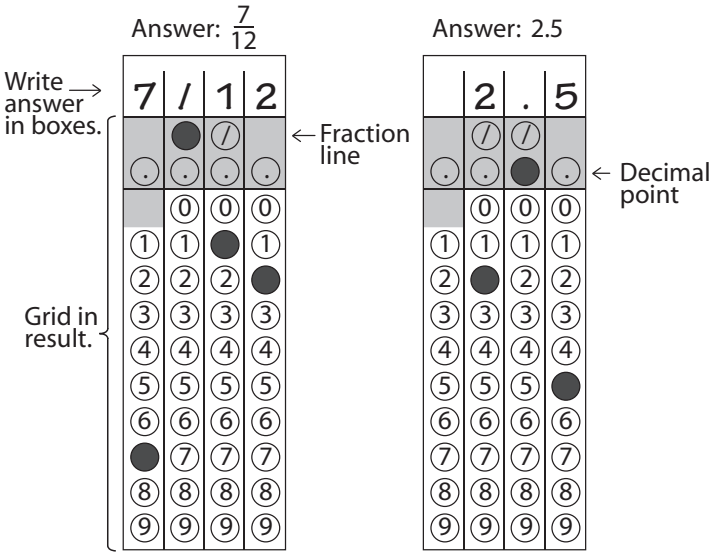
D) $x^2 + 6x = 432$

CONTINUE

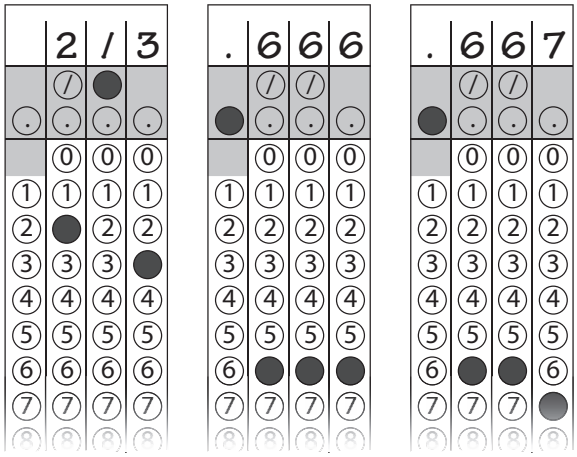
DIRECTIONS

For questions 31-38, solve the problem and enter your answer in the grid, as described below, on the answer sheet.

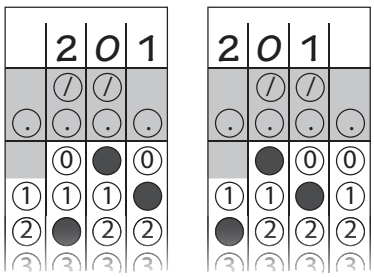
1. Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
2. Mark no more than one circle in any column.
3. No question has a negative answer.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



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



Answer: 201 – either position is correct



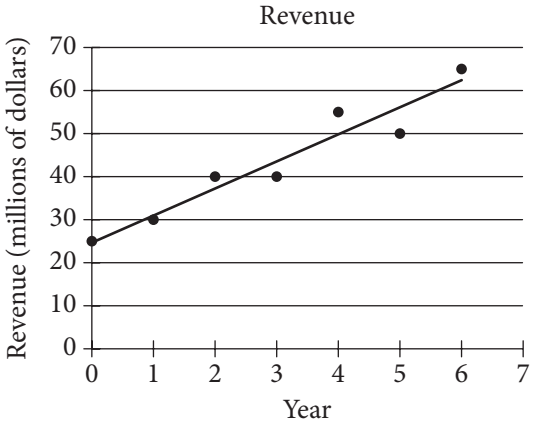
NOTE: You may start your answers in any column, space permitting. Columns you don't need to use should be left blank.

CONTINUE

31

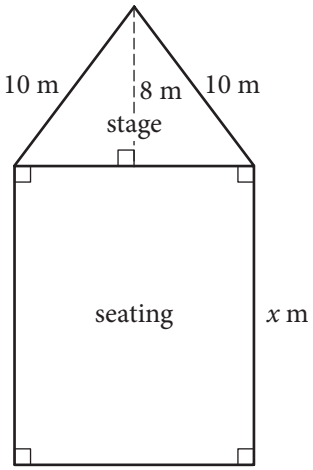
If $|2x + 3| = 5$ and $|3y - 3| = 6$, what is one possible value of $|xy|$?

32



The scatterplot above shows the revenue, in millions of dollars, that a company earned over several years and a line of best fit for the data. In Year 4, the difference between the actual revenue and the predicted revenue is n million dollars, where n is a positive integer. What is the value of n ? Round your answer to the nearest whole number. (Disregard the $ sign when gridding your answer.)

33



The figure above is the floor plan drawn by an architect for a small concert hall. The stage has depth 8 meters (m) and two walls each of length 10 m. If the seating portion of the hall has an area of 180 square meters, what is the value of x ?

34

Jacob bought two types of pens: blue pens that cost $0.60 each and red pens that each cost d times as much as a blue pen. If the cost of 3 blue pens and 6 red pens was $10.80, what is the value of d ?

35

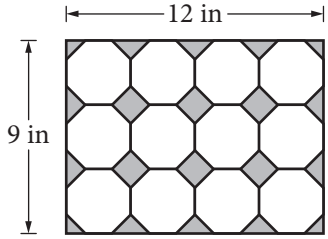
George took a nonstop flight from Dallas to Los Angeles, a total flight distance of 1,233 miles. The plane flew at a speed of 460 miles per hour for the first 75 minutes of the flight and at a speed of 439 miles per hour for the remainder of the flight. To the nearest minute, for how many minutes did the plane fly at a speed of 439 miles per hour?

36

An arc of a circle measures 2.4 radians. To the nearest degree, what is the measure, in degrees, of this arc? (Disregard the degree sign when gridding your answer.)

CONTINUE

Questions 37 and 38 refer to the following information.



Carrie, a packaging engineer, is designing a container to hold 12 drinking glasses shaped as regular octagonal prisms. Her initial sketch of the top view of the base of the container is shown above.

37

If the length and width of the container base in the initial sketch were doubled, at most how many more glasses could the new container hold?

38

Carrie redesigned the container because the initial sketch did not account for cushioning material between the glasses. The area of the base of the newly designed container is 25% greater than the area of the base in the initial sketch. What is the area, in square inches, of the base of the newly designed container?

STOP

If you finish before time is called, you may check your work on this section only. Do not turn to any other section.

Essay

DIRECTIONS

The essay gives you an opportunity to show how effectively you can read and comprehend a passage and write an essay analyzing the passage. In your essay, you should demonstrate that you have read the passage carefully, present a clear and logical analysis, and use language precisely.

Your essay must be written on the lines provided in your answer booklet; except for the Planning Page of the answer booklet, you will receive no other paper on which to write. You will have enough space if you write on every line, avoid wide margins, and keep your handwriting to a reasonable size. Remember that people who are not familiar with your handwriting will read what you write. Try to write or print so that what you are writing is legible to those readers.

REMINDERS

1. **Do not write your essay in this booklet.** Only what you write on the lined pages of your answer booklet will be evaluated.
2. **An off-topic essay will not be evaluated.**

You have 50 minutes to read the passage and write an essay in response to the prompt provided inside this booklet.

As you read the passage below, consider how Mark Gold and Cara Horowitz use

- evidence, such as facts or examples, to support claims.
- reasoning to develop ideas and to connect claims and evidence.
- stylistic or persuasive elements, such as word choice or appeals to emotion, to add power to the ideas expressed.

Adapted from Mark Gold and Cara Horowitz, "Drowning the Oceans in Plastic." ©2013 by Los Angeles Times. Originally published November 4, 2013.

1 You've probably seen the images of dolphins caught in abandoned monofilament fishing nets, or of vast areas of plastic trash floating in remote waters of the Pacific, or of sea turtles consuming plastic bags that look remarkably like one of their favorite foods: jellyfish. Or perhaps, after a rainstorm, you've walked on a beach that resembled a landfill. Some 20 million tons of plastic pollution enters the oceans each year, and it's devastating the marine environment.

2 Plastic litter is also costly. On the West Coast alone, according to a recent EPA study, the cost of cleaning up marine litter comes to more than $13 per person per year. And because plastic typically does not degrade in the ocean, today's pollution will be a problem for many generations to come.

3 Locally, there have been some success stories. Thanks to state and federal environmental requirements, the Los Angeles region has installed screens on more than 50,000 storm water basins, as well as inserts that keep all but the smallest plastic pollution out of local rivers, beaches and bays. Additionally, bans on single-use plastic bags in a number of local jurisdictions have reduced plastic bag use by tens of millions of bags annually. And West Hollywood, Manhattan Beach, Santa Monica and Malibu have banned single-use foam food packaging. All of these measures have meant less plastic ending up in the ocean locally.

4 Statewide, legislation to ban plastic bags has failed numerous times due to successful lobbying efforts from plastic bag manufacturers and others, but nevertheless, more than 10 million Californians live in cities that have banned the bag. The State Water Resources Control Board will soon release a statewide trash policy that builds on the Los Angeles area's successful trash control measures.

5 But we need far more comprehensive policies, and the story nationally and internationally is still gloomy. Last year's landmark Rio+20 United Nations Conference on Sustainable Development recognized marine litter as a major environmental issue that the world must address, and it called for action by 2025 to "achieve significant reductions in marine debris to prevent harm to coastal and marine environments."

6 However, a recent UCLA study analyzed dozens of treaties, programs and policies in place around the world and found all of them to be severely lacking. Overall, the well-intentioned international agreements impose vague or voluntary standards, require little to no monitoring, are severely underfunded and are difficult to enforce. In fact, the UCLA researchers concluded that there was essentially no recourse under international law to address most plastic marine litter on the high seas.

7 Even the most effective of the current treaties, the International Convention for the Prevention of Pollution from Ships, has huge loopholes. For example, the treaty exempts accidental loss or disposal of plastic resulting from ship or equipment damage, and leaves enforcement and penalty decisions up to often-reluctant states.

8 To achieve the dramatic reductions necessary to stem the plastic marine litter crisis, we need a comprehensive solution akin to the Montreal Protocol, an international treaty that has dramatically reduced the global use of ozone-depleting chlorofluorocarbons. An effective treaty would include strict monitoring requirements, third-party compliance assessment, funding mechanisms and easily enforceable requirements with substantial penalties.

9 One big problem is that international environmental treaties can take a decade or more to negotiate. In the interim, therefore, concerned countries must also pursue regional, national and local policies and programs to address plastic marine litter.

10 Potential actions could include the creation of an "ocean-friendly" product certification program; regional and national bans on the most common and damaging types of plastic litter; the expansion of programs that provide economic incentives for manufacturers to manage plastic waste sustainably; the creation and implementation of certification and tracking programs for fishing and aquaculture operations; and the establishment of funding sources for marine litter remediation through product redemption fees and shipping container fees at ports.

11 No individual action will solve the plastic marine litter crisis, but swift implementation of these policies could have a huge positive effect in reducing a critical environmental problem.

Write an essay in which you explain how Mark Gold and Cara Horowitz build an argument to persuade their audience that we need more comprehensive international policies to eliminate and prevent plastic marine litter. In your essay, analyze how Gold and Horowitz use one or more of the features listed in the box above (or features of your own choice) to strengthen the logic and persuasiveness of their argument. Be sure that your analysis focuses on the most relevant features of the passage.

Your essay should not explain whether you agree with Gold and Horowitz's claims, but rather explain how Gold and Horowitz build an argument to persuade their audience.

As you read the passage below, consider how the *Chicago Tribune* editorial board uses

- evidence, such as facts or examples, to support claims.
- reasoning to develop ideas and to connect claims and evidence.
- stylistic or persuasive elements, such as word choice or appeals to emotion, to add power to the ideas expressed.

Adapted from the *Chicago Tribune* editorial board, "Crop Politics." ©2013 by The Chicago Tribune. Originally published October 5, 2013.

1 This is harvest season in the heartland, and another big corn crop is pouring into the bins. Amid the abundance, however, trouble lurks.

2 Because of government policies that promote turning corn into ethanol fuel for cars, farmers have taken to planting as much corn as possible.

3 Corn is America's biggest cash crop by far, and across most of the Midwest it is the most profitable by far. Because roughly 40 percent of the crop is being diverted into gas tanks, a bushel of corn fetches a much higher price today than it did before the government-subsidized ethanol boom.

4 Even when prices drop during abundant harvests, as they have in recent weeks, the profits for an acre of corn often still exceed those for soybeans, wheat and other alternative crops that might be grown on the same highly productive land.

5 No surprise, the government's pro-corn agenda has produced unwanted side effects. Livestock producers who depend on corn for animal feed have cut back their herds. That's a big reason why meat is more expensive in grocery stores and restaurants these days.

6 Another unwelcome hazard of government interference in the marketplace is a bacteria that survives primarily in the residue of stalks and leaves left over after a farmer harvests a cornfield. Historically, Goss's Wilt [the disease caused by this bacteria] infected a relatively small part of the grain belt: Kansas, Nebraska and South Dakota were high-risk areas. Today, the area at high risk for this potentially devastating plant disease extends all the way east through Iowa and northern Illinois into Indiana.

7 Certain hybrid seeds have proved susceptible to Goss's Wilt. But another big reason for its spread is the practice of planting corn on the same ground year after year. The easiest way to put a stop to the spread of Goss's Wilt is to plant soybeans, alfalfa or some other crop that isn't a host to it.

8 Farmers have known about the benefits of rotating crops since the dawn of agriculture. The federal government has made corn cultivation so lucrative that those time-honored lessons are being set aside. Planting "corn-on-corn" invites a crop disease epidemic. It would behoove the federal government to provide an incentive for sound stewardship of Midwest farmland, which is one of America's greatest natural assets.

9 Just the opposite is occurring.

10 Under pressure from the ethanol lobby, the federal government has continued to boost the amount of corn fuel that it requires to be mixed in with the nation's gasoline supply. This so-called "renewable fuel standard" forces consumers to buy ever-increasing amounts of ethanol. The standard was intended to promote the development of alternative feedstocks to produce ethanol. Yet those alternatives have not worked out in commercially viable quantities. The government requirement for more ethanol is being met with more (and more) corn.

11 Similarly, the House and Senate proposals for the periodic renewal of farm policy legislation (known as the farm bill) have included a huge expansion of federally subsidized crop insurance.

12 The "crop insurance" name is misleading: At one time, crop insurance actually insured the crops of participating farmers against drought, floods and other extreme hazards. The program has expanded into a vast giveaway that enables farmers to lock in their revenues come what may. This taxpayer-funded insurance in effect eliminates the business risk that farmers would face from a failed crop. Expanding the program with billions of additional dollars, as lawmakers have set out to do, would give farmers another reason to plant more (and more) corn without regard to potential consequences.

13 The solution to this perverse state of affairs is simple: Congress needs to eliminate the renewable fuel standard. It needs to cut back, rather than expand, the out-of-control crop insurance program.

14 Of course Congress at the moment is busy not doing its job, having presided over the first partial government shutdown in 17 years. When—someday—Congress reconvenes, it is likely to consider these matters, if only to address the short-term negative effects of having allowed the most recent extension of the farm bill to expire Sept. 30.

15 . . . Subsidizing ethanol at such enormous levels and guaranteeing the revenues of individual farms makes no economic sense—and may be setting up the U.S. corn crop for a disease-ridden future.

Write an essay in which you explain how the *Chicago Tribune* editorial board builds an argument to persuade its audience that the federal government should stop providing incentives for farmers to grow corn crops. In your essay, analyze how the editorial board 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 its argument. Be sure that your analysis focuses on the most relevant features of the passage.

Your essay should not explain whether you agree with the *Chicago Tribune* editorial board's claims, but rather explain how the editorial board builds an argument to persuade its audience.

Answer Key – Determine Raw Scores

Reading Test Answers

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

Reading Test Raw Score
(Number of Correct Answers)

Writing and Language Test Answers

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

Writing and Language Test Raw Score
(Number of Correct Answers)

"U" indicates a question that did not perform as expected and has been removed from scoring.

Answer Key – Determine Raw Scores (continued)

Math Test – No Calculator Answers

Question #	Correct Answer	Question #	Correct Answer	Question #	Correct Answer	Question #	Correct Answer
1	C	5	C	9	C	13	A
2	B	6	A	10	B	14	D
3	A	7	C	11	D	15	D
4	C	8	D	12	C		

Question #	Correct Answer
16	6
17	2,3
18	28
19	3.25,13/4
20	108

Math Test – No Calculator Raw Score
(Number of Correct Answers)

Math Test – Calculator Answers

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

Question #	Correct Answer
31	1,3,4,12
32	4,5,6
33	15
34	2.5,5/2
35	90
36	138,137
37	36
38	135

Math Test – Calculator Raw Score
(Number of Correct Answers)

"U" indicates a question that did not perform as expected and has been removed from scoring.

CONVERSION TABLES

Raw Score Conversion – Section and Test Scores

Section and Test Scores

RAW SCORE CONVERSION TABLE 1

Raw Score (# of correct answers)	Math Section Score	Reading Test Score	Writing and Language Test Score
0	200	10	10
1	210	10	10
2	220	10	10
3	230	11	11
4	240	12	12
5	260	13	13
6	270	14	14
7	290	15	15
8	300	15	16
9	320	16	16
10	330	17	17
11	340	18	17
12	350	18	18
13	360	19	19
14	380	20	20
15	390	20	20
16	400	21	21
17	410	21	21
18	430	22	22
19	440	23	23
20	450	23	23
21	460	24	24
22	470	24	25
23	480	25	25
24	490	25	26
25	500	26	27
26	510	26	27
27	510	27	28
28	520	27	28
29	530	28	29
30	530	28	30
31	540	29	30
32	550	29	31
33	560	30	32
34	570	30	32
35	580	31	33
36	590	31	33
37	590	32	34
38	600	32	34
39	610	32	35
40	620	33	36
41	630	33	37
42	640	34	38
43	650	34	39
44	660	35	40
45	670	36	
46	680	36	
47	690	37	
48	700	38	
49	710	38	
50	730	39	
51	740	39	
52	750	40	
53	770		
54	780		
55	790		
56	790		
57	800		
58	800		

Section and Test Scores

CONVERSION EQUATION 1