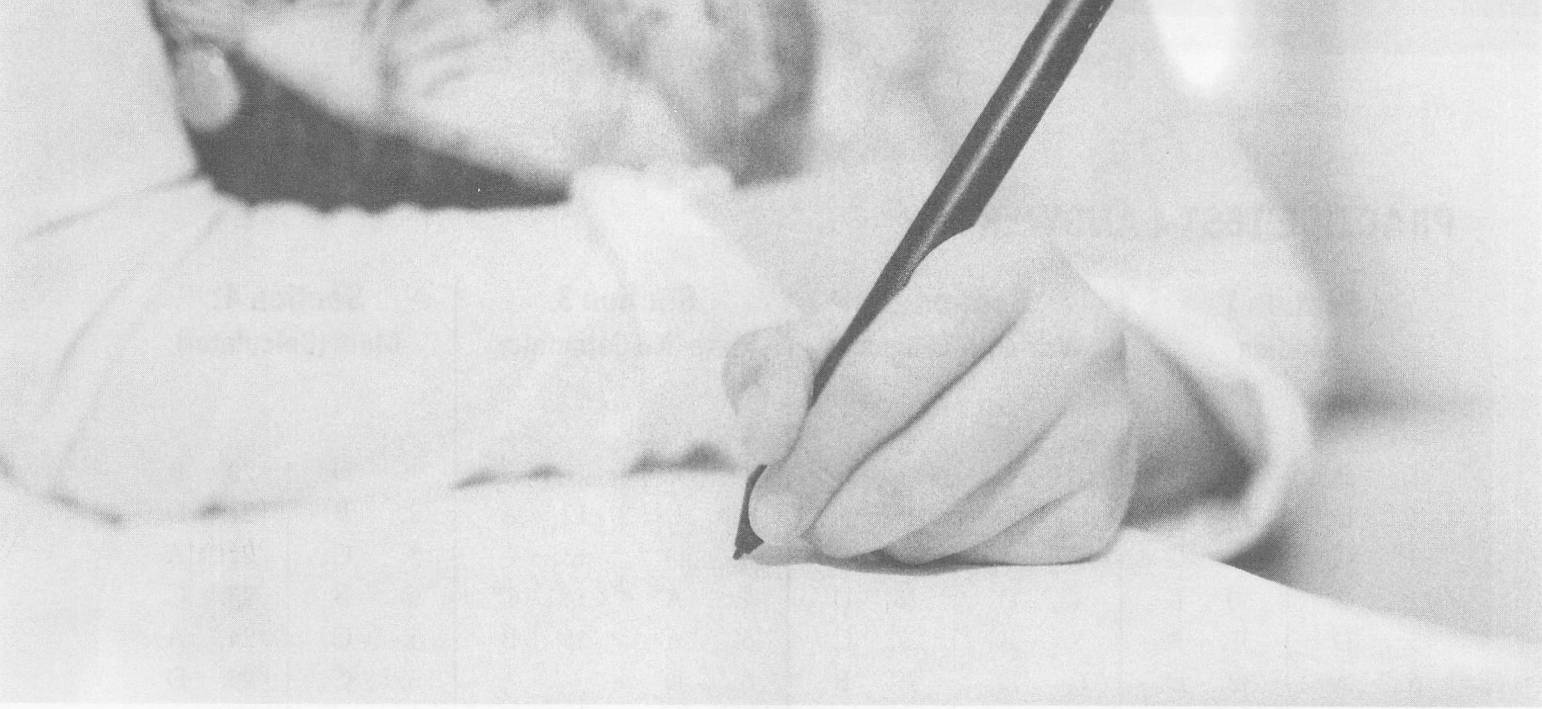


Chapter 10
Practice Test 4: Answers and Explanations

PRACTICE TEST 4 ANSWER KEY

Section 1: Reading

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

Section 2: Writing & Language

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

Section 3: Math (No Calculator)

1.	B	11.	A
2.	B	12.	A
3.	D	13.	C
4.	A	14.	C
5.	A	15.	B
6.	D	16.	$\frac{5}{8}$ or .625
7.	C	17.	3
8.	C	18.	1
9.	D	19.	$\frac{20}{9}$ or 2.22
10.	B	20.	4

Section 4: Math (Calculator)

1.	D	20.	B
2.	B	21.	D
3.	C	22.	A
4.	B	23.	C
5.	C	24.	A
6.	C	25.	D
7.	A	26.	A
8.	B	27.	C
9.	A	28.	A
10.	D	29.	B
11.	C	30.	C
12.	D	31.	1.2
13.	A	32.	620
14.	D	33.	$\frac{25}{4}$, $\frac{50}{8}$, or 6.25
15.	C		
16.	A		
17.	B		
18.	D		
19.	A	34.	8.16
		35.	43, 44, or 45
		36.	90
		37.	1.07
		38.	7,078

Go to PrincetonReview.com to score your exam. Alternatively, for self-assessment tables, please turn to page 909.

PRACTICE TEST 4 EXPLANATIONS

Section 1: Reading

1. **B** The question asks about the narrator's shift in focus through the passage. Because this is the first question in a paired set, it can be done in tandem with Q2. Consider the answers for Q2 first. Choice (2A) can be eliminated because those lines don't refer to the narrator's focus. Choice (2B) could refer to the *disquiet about the unknown*, but there's no support for a shift. Eliminate (2B). Choice (2C) does not refer to the narrator at all, so eliminate it. Choice (2D) contains the phrase *and yet,* which indicates a change. In context, the lines show the narrator shifting from *we shall not ask this question* to wondering about that very question. This supports Q1, so (2D) is correct. Now check the answers for Q1 to see which answers the question and is supported by (2D). Eliminate (1A) because the narrator never prepares to explore a frontier. Choice (1B) refers to a shift from *disquiet* to *curiosity*, which not only answers Q1 but can be supported with the lines from (2D). Keep (1B). Choice (1C) might look good initially, because the narrator does acknowledge the ancient city. He never dismisses it, though, so eliminate (1C). Choice (1D) can be eliminated because although the narrator mentions the Council's rules, there's no shift from *repetition...to acceptance.* The correct answers are (1B) and (2D).

2. **D** (See explanation above.)

3. **C** The question asks what the phrase *all must agree with all* means in lines 3 and 4. Go back to the text, find the phrase *all must agree with all*, and mark it out. Carefully read the surrounding text to determine another phrase that would fit in the blank based on the context of the passage. The text further explains the brothers are silent because they don't know if their *thoughts are the thoughts of all.* The correct answer should mean something like "all in agreement." Choice (A) can be eliminated because there's nothing in the text about whether the thoughts are actually true or not. Choices (B) and (D) can be eliminated for similar reasons because the text never talks about the accuracy or meaning of language. The brothers must simply agree, regardless of the truth. Choice (C) matches the prediction. The correct answer is (C).

4. **B** The question asks about the role of the indicated sentence. Use the given line reference to find the window. Before the sentence, the narrator mentions the *Uncharted Forest* and says *we do not wish to look upon...we do not wish to think of it. But ever do our eyes return to that black patch.* The *but* indicates a contrast, showing that even though the narrator may not wish to think about it, he definitely does. After the indicated sentence, the narrator provides evidence that the people know very little about the Uncharted Forest, and the only things he has heard have been dismissed as legend. Choice (A) can be eliminated because there is no indication that the Forest is an immediate threat or that the narrator's job is to guard anything. Choice (B) matches the prediction, so don't eliminate it. Choice (C) does match the part that the narrator keeps looking at the horizon, but it doesn't address *why* he is looking in that direction. Eliminate (C). Choice (D) might initially look good because there is a repeated action and something unexplainable, but there's nothing in the text to support *confusion*. Eliminate (D). The correct answer is (B).

5. **D** The question asks about what a *person who wished to navigate the Uncharted Forest would find.* Because this is the first question in a paired set, it can be done in tandem with Q6. Consider the answers for Q6 first. Choice (6A) indicates that the Uncharted Forest has *no power* and *no path*, which supports both (5D) and Q5. Keep (6A). Choices (6B) (*wild beasts that roam the forest*), (6C) (*bones)*, and (6D) (*fires* and *Evil Ones)* may support Q5, but none of them connect to

Q5 answer choices, so eliminate them. As the sole remaining pair, the correct answers are (5D) and (6A).

6. **A** (See explanation above.)

7. **A** The question asks about the narrator's view of the secrets of the past. He knows the secrets exist, but he doesn't know the secrets themselves. He pays attention and wonders about the legends and stories. He equates seeking answers to the questions with *calling death upon our head.* The narrator is fascinated by the secrets of the past but also afraid of this curiosity because it is forbidden. Choice (A) matches this prediction, so keep it. Choice (B) can be eliminated because the text makes it clear that the answers to the secrets are not *easily pursuable.* Choice (C) does not match the prediction because the narrator is doing a very good job of avoiding exploring the secrets. Choice (D) can be eliminated because there is no mention of authenticity in the text. The correct answer is (A).

8. **C** The question asks about the inference that can be made from the given line. Find the line and carefully read the window around it to determine what clues are in the text about the meaning of the line. The Uncharted Forests have *grown over the ruins of many cities* and the *trees have swallowed...all things which perished.* The narrator means that anything that existed in the ancient cities is now covered up and destroyed by the growth of the Forests. Choice (A) can be eliminated because there's no stated connection in these lines between people in the narrator's society and the ancient cities. Choice (B) can be eliminated because the trees mentioned in the lines are covering the ancient cities, not living within them. Choice (C) matches the prediction, so don't eliminate it. Choice (D) can be eliminated because the text indicates that the Forest is forbidden, and there is no evidence that the Forest is used for any literal purpose. The correct answer is (C).

9. **C** The question asks what the phrase *how it came to pass* means in lines 3 and 4. Go back to the text, find the phrase *how it came to pass*, and mark it out. Carefully read the surrounding text to determine another phrase that would fit in the blank based on the context of the passage. The correct answer should mean something like "what happened back then." Choices (A) and (B) can be eliminated because nothing is crossing anything else or going in a circle. Choice (C) matches the prediction. Choice (D) might initially look good because it connects to the passage of time, but the original phrase refers to what actually happened in the past, not how time moved from the past to the present. The correct answer is (C).

10. **D** The question asks what the word *scripts* means in line 39. Go back to the text, find the word *scripts*, and mark it out. Carefully read the surrounding text to determine another word that would fit in the blank based on the context of the passage. The author refers to the *words of the Unmentionable Times*, so the correct answer should mean something like "written words." Eliminate (A) and (B). There is no evidence in the text that the words are specifically screenplays, or even that there are movies at all, so (C) can be eliminated. The correct answer is (D).

11. **D** The question asks for a summary of *the first two paragraphs of the passage.* Use the given line reference to find the window. Lines 11–14 say, *Smart cities bring together infrastructure and technology to improve the quality of life of citizens and enhance their interactions with the urban environment*, while lines 17–25 add that the *Internet of Things (IoT)* empowers Smart cities by enabling *various objects and entities to communicate with each other through the internet*, which creates *a network of objects capable of smart interactions.* Eliminate answer choices that don't match the text of the first two paragraphs. Eliminate (A) because while the author does pose a possible *complicated problem*, (*how do we connect this new technology for the ultimately "efficient" society?*) the focus of the first two paragraphs is a viable solution via the *IoT.* Choice (B) includes a true detail from the second paragraph but does not *summarize* the first two paragraphs, making (B) a Right Answer,

Wrong Question trap answer. Eliminate (B). Like (B), (C) is a Right Answer, Wrong Question trap answer, as it matches the idea that *cities* are *reducing costs by pinpointing issues prior to their emergence* (lines 28–32) but does not provide a *summary* of the first two paragraphs. Eliminate (C). Choice (D) matches the text, so keep it. The correct answer is (D).

12. **B** The question asks what the word *enhance* most nearly means in line 13. Go back to the text, find the word *enhance*, and cross it out. Then read the window carefully, using context clues to determine another word that would fit in its place. The text says that *smart cities bring together infrastructure and technology to improve the quality of life of citizens and enhance their interactions with the urban environment.* Therefore, *enhance* could be replaced by a word such as "improve." Eliminate answer choices that don't match the way the word is used in context. *Emphasize* does not match "improve," so eliminate (A). *Enrich* matches *"improve,"* so keep (B). Neither *convey* nor *increase* matches "improve," so eliminate (C) and (D). Note that (A) and (D) are Could Be True trap answers based on alternate meanings of *enhance* that are not supported by the text. The correct answer is (B).

13. **A** The question asks *which aspect of the city's infrastructure Barcelona* improved *through integration with the IoT.* Since there is no line reference, use lead words and the order of the questions to find the window. Q12 asks about line 13, so scan the passage beginning with line 13, looking for the lead word *Barcelona*. Lines 38–41 state, *By integrating smart water, lighting and parking management, Barcelona saved €75 million of city funds and created 47,000 new jobs in the smart technology sector.* Eliminate answer choices that don't match this answer from the passage. Choice (A), *lighting*, matches the text, so keep it. *Traffic flow*, *trash cans*, and *energy* do not match the text, so eliminate (B), (C), and (D). Each of these is a Right Answer, Wrong Question trap, since the passage mentions them as projects done in other cities. The correct answer is (A).

14. **D** The question asks what *the passage implies* about *universities using smart technology.* This is the first question in a paired set, so it can be done in tandem with Q15. Look at the answer choices for Q15 first, reading with the question in mind. The lines for 15(A) state that *tertiary institutions are also looking into maximizing the impact of integrated smart technology.* While *universities* would qualify as *tertiary institutions*, this information does not match any of the answer choices from Q14. Eliminate (15A). The lines for (15B) state, *Places such as university campuses and island communities provide smaller laboratories to implement technology in a more manageable environment that can be then replicated on a larger scale.* These lines directly address Q14, so check the answer choices for Q14 to see whether any of the choices are supported by these lines. This information matches (14D), which states that these *universities can serve as models for cities.* Draw a line connecting (15B) with (14D). The lines for (15C) indicate that *smart technology could go even further in improving efficiency by tracking the movements and actions of students.* These lines do not match any answer choices for Q14, so eliminate (15C). The lines for (15D) say, *On campus, your phone or smartwatch could remind you of a class and how to reach it, give you updates on your assignment due dates as well as warn you about overdue books you have borrowed from the library.* These lines do not match any answer choices for Q14, so eliminate (15D). Without any support in the answer choices from Q15, (14A), (14B), and (14C) can be eliminated. The correct answers are (14D) and (15B).

15. **B** (See explanation above.)

16. **B** The question asks what the word *floated* most nearly means in line 65. Go back to the text, find the word *floated*, and cross it out. Then read the window carefully, using context clues to determine another word that would fit in its place. The text says, *The smart campus idea was*

first floated in spring 2016. Therefore, *floated* could be replaced by a word such as "proposed." Eliminate answer choices that don't match the way the word is used in context. *Buoyed* does not match "proposed," so eliminate (A). *Suggested* matches "proposed," so keep (B). *Suspended* doesn't match "proposed," so eliminate (C). *Claimed* does not match "proposed," so eliminate (D). Note that (A) and (C) are Could Be True trap answers based on other meanings of *floated* that are not supported by the text. The correct answer is (B).

17. **C** The question asks about *a potential effect of implementing smart technology in cities*. This is the first question in a paired set, so it can be done in tandem with Q18. Look at the answer choices for Q18 first, reading with the question in mind. The lines for (18A) say, *As smart technology continues to improve and urban centers expand, both will become interconnected*. These lines do not support any of the answer choices for Q17, so eliminate (18A). The lines for (18B) indicate that *the United Kingdom has plans to integrate smart technology in future development and use big data to make better decisions to upgrade the country's infrastructure*. These lines do not support any of the answer choices for Q17, so eliminate (18B). The lines for (18C) state, *Better decisions could be a boom to the economy*. These lines do not support any of the answers for Q17, so eliminate (18C). The lines for (18D) state, *By taking a step towards the future, we will improve not only how we interact with our general environment but how cities interact with us, ensuring that we receive the best quality options and waste fewer resources*. This information describes *increased efficiency* and *responsiveness* quite well, so draw a line connecting (17C) and (18D). Without any support in the answer choices from Q18, (17A), (17B), and (17D) can be eliminated. The correct answers are (17C) and (18D).

18. **D** (See explanation above.)

19. **C** The question asks what *the information in the chart provides*. Work through each answer choice using the figure. Eliminate (A) because the *drawbacks* of the various applications are not mentioned in the chart. Eliminate (B) because this chart doesn't examine *historical* comparisons, only a snapshot in time. Keep (C) because the chart provides *a comparison of some of the applications* of smart technology that are mentioned in the passage. Eliminate (D) because the chart doesn't measure *effectiveness* of the solutions, only the extent of their implementation. The correct answer is (C).

20. **B** The question asks what was implemented by *cities with between 20,000 and 50,000 citizens*. Make sure to read the *x*-axis, the *y*-axis, and the legend carefully. The *x*-axis measures the five different categories of projects that are being compared. The *y*-axis measures the mean values of the number of measures implemented. The legend contains the range of different populations measured. Work through each answer choice using the figure. Eliminate (A) because, for cities with *between 20,000 and 50,000 citizens*, the difference in number of projects between *infrastructure* and *environment* is nearly 2.0. Keep (B) because for *infrastructure*, *environment*, *transportation*, and *health*, cities with populations *between 20,000 and 50,000* implemented fewer projects than did cities with populations *between 50,000 and 100,000*. Eliminate (C) because cities with populations *between 20,000 and 50,000* measure nearly 0.5 on the *y*-axis in the *environment* category, while cities with the same population range measure barely 0.25 in the *transportation* category. This contradicts what is stated by the answer choice. Eliminate (D) because cities with *between 20,000 and 50,000 citizens* implemented a mean of about 2.25 projects in the *infrastructure* category, while cities with *beyond 100,000 citizens* implemented a mean of nearly 3.5 projects, and 2.25 is more than half of 3.5. The correct answer is (B).

21. **A** The question asks for a statement *about smart cities developments* that is suggested by the *chart*. Work through each answer choice using the figure. Choice (A) is accurate because, in each of the five categories, the cities with populations of more than *100,000 citizens* implemented more

projects than the cities with fewer than *10,000 citizens*. Keep (A). Eliminate (B) because the figure doesn't measure how much *money* was spent on the projects. Eliminate (C) because the number of projects in the *environment* category is greater than the number of projects in the *health* category for every population category. Eliminate (D) because the figure doesn't measure how well-received the projects were. The correct answer is (A).

22. **C** The question asks about the main purpose of the passage. Because this is a general question, it should be done after all the specific questions. The main purpose of the passage is to discuss how the authors investigated whether an ancient mural in Turkey depicts an actual eruption by proving that there was an eruption nearby at approximately the same time. Choice (A) can be eliminated because the passage doesn't discuss multiple geologic ages. Choice (B) can be eliminated because although the passage mentions radiometric aging, it never explains the ways in which it was used. It's also not the main idea. Choice (C) closely matches the prediction, so keep it. Choice (D) similarly doesn't explain how the pumice veneer forms, nor is this the main idea, so this answer can be eliminated. The correct answer is (C).

23. **A** The question asks how the focus of the passage shifts. Because this is the first question in a paired set, it can be done in tandem with Q24. Consider the answers for Q24 first. Choice (24A) does not support a shift and can be eliminated. The *view...contested* in (24B) not only supports Q23 but also connects to the turn toward *criticism of this theory* in (23A). Connect (24B) and (23A). The lines in (24C) state, *A tradition that predated the settlement of* Çatalhöyük *thus appears very unlikely.* These lines do not indicate a shift in focus, nor do they support any of the answers to Q23. Eliminate (24C). Choices (24D) and (23D) follow the same pattern: both mention *radiometric aging* but fail to address Q23. After eliminating (24C) and (24D), (23A) and (24B) remain the only possible pairing. The correct answers are (23A) and (24B).

24. **B** (See explanation above.)

25. **D** The question asks about the phrase *it putatively depicts* in the context of the passage. Use the given line reference to find the window. The context reveals that it's not clear whether the mural shows an actual volcano or not, since *independent evidence...has been lacking.* Another word or phrase that could go into the passage here might be "possibly" or "theoretically." Choice (A) describes what scientists do and has nothing to do with the doubt relayed, so it can be eliminated. Choices (B) and (C) are closer in that they mention the need for clarification and certainty that scientists rely upon, but they're both too general. Choice (B) says theories must *always* be questioned, but the text only discusses one theory. Choice (C) refers to *the work of scientists*, which is again too broad. Only (D) addresses the idea that this specific claim does not have enough evidence to be proven with a reasonable amount of satisfaction. The correct answer is (D).

26. **A** The question asks about the probable location of the Neolithic volcanic eruption. Because this is the first question in a paired set, it can be done in tandem with Q27. Consider the answers for Q27 first. Choice (27A) states that a *mural* found at the *Neolithic* Çatalhöyük *site (Central Anatolia, Turkey)* shows *an explosive summit eruption*, which supports both Q26 and (26A). Choice (27B) may reference a *British archaeologist*, but it provides no support that an eruption happened either in the *British Isles* (26B) or anywhere else. Eliminate (27B). Choice (27C) lays a similar trap, noting *North American* traditions that may appear connected to (26D) without any direct support for a *Neolithic eruption.* Eliminate (27C). Last, (27D) mentions the same volcanic site as (27A) but without any indication of its location, leaving (26A) and (27A) as the only possible pairing. The correct answers are (26A) and (27A).

27. **A** (See explanation above.)

28. **C** The question asks about the meaning of the phrase *This is not to say* in the context of the passage. Use the given line reference to find the window. Prior to this sentence, the passage states, *For the* Çatalhöyük *map (and volcano) hypothesis to be plausible, however, we surmise that a brief line of oral tradition, or even an eyewitness portrayal, is perhaps more likely than tradition of a myth that detached itself from its inspiration in the physical world.* Basically, for the map to be somewhat accurate, someone would have to have seen the eruption himself or the description could only have been relayed a couple times. *This is not to say* clarifies that they wouldn't expect a Neolithic map to be completely accurate, but it should have details specific to that type of volcano. Choice (A) can be eliminated because it isn't stated that details were lost, nor does the passage state that details from the mural are crucial for proving the truth. Choice (B) is tempting since this sentence is near the discussion of oral histories, but the passage doesn't say that oral histories don't describe real events. Choice (C) closely matches the prediction, so don't eliminate it. Choice (D) is the opposite of the prediction, since the passage says *realism must not prevail in Neolithic art*, meaning that it wasn't important to the scientists that the drawing be realistic. The correct answer is (C).

29. **C** The question asks about evidence that supports the claim that the *mural was painted near the time of the volcanic eruption*, so find evidence in the passage to support that. Although this question might initially look like a best evidence paired question, notice that the lines in the answers are all answers for this question. It is most efficient to work backwards, using the lines given in the answers. Choice (A) does address the volcanic eruption, but it does not connect the eruption to the mural at all. Eliminate (A). Choice (B) has nothing to do with the volcano or the mural, so it can be eliminated. Choice (C) does connect time with accuracy, saying *but many of the apparent details can be reasonably expected to become lost or obscured during a long period of oral tradition.* That is, if the eruption happened and was described over many generations, the truth about the details would gradually change. Thus, the eruption must have happened close to the time of the painting of the mural. While it might not initially look perfect, there's no clear reason to eliminate it, so keep (C). Choice (D) focuses on the volcano and does not connect the eruption to the mural, so (D) can be eliminated. The correct answer is (C).

30. **B** The question asks about an eruption age. On the table, two eruptions are marked: A and B. Notice the eruptions are labeled with the *ka* unit, which is defined as *age in thousands of years.* Therefore, the two eruptions are 8.97 ka, or 8,970 years old, and 28.9 ka, or 28,900 years old. The question asks about the *youngest* eruption, which would be the smallest number. The correct answer is (B).

31. **B** The question asks when the Hasan Dağı is predicted to have erupted. The passage states *we would predict a time period for the eruption between 7400 and 6600* B.C.E. and the table indicates the eruption is roughly 8,970 years old. Going back in time just under 9,000 years would put the eruption roughly around 6900 B.C. The correct answer is (B).

32. **D** The question asks about which statement would be supported by the data, so use the data to go through each of the four statements. Choice (A) is the opposite of what is in the table. The xenocrysts were older than the other particles. Eliminate (A). Choice (B) can be eliminated because there is nothing about the oral tradition in the graphic. Choice (C) does reference the dating method used for the crystals, but this answer can be eliminated because there is no indication that it's the *best way* to determine the age of an artifact. Choice (D) matches the data, indicating that the particles from HDA (the flank of the volcano) are older than the particles taken from the rim. The correct answer is (D).

33. **A** The question asks about Burke's opinion of the argument of those who support electing officials. In the text, Burke says that they use *paltry artifices* and *substitute a fictitious cause, and feigned personages*, thereby using weak or untrue arguments. Choice (A) matches that prediction, so don't eliminate it. Choice (B) can be eliminated because even though Burke mentions *fanatics*, he isn't referring to the *sophisters*, and though *universality* might be understood, there's no support for it in the text. Choice (C) doesn't work because the argument, though weak, is current, not antiquated. Eliminate (C). Choice (D) can be eliminated because there is no mention anywhere of *innovation*. The correct answer is (A).

34. **A** The question asks what the word *overload* means in line 1. Go back to the text, find the word *overload*, and mark it out. Carefully read the surrounding text to determine another word that would fit in the blank based on the context of the passage. There is a time contrast in the sentence between *a few years ago* and *now* that can be used for context. Burke says *a few years ago* he would have been *ashamed to overload a matter...*with *unnecessary support* but now the doctrine is *publicly taught, avowed, and printed*. The correct answer should mean something like "unnecessarily support." Choice (A) is a clear synonym of that phrase, whereas (B), (C), and (D) don't have anything to do with "unnecessarily support." The correct answer is (A).

35. **B** The question asks what the word *employ* means in line 20. Go back to the text, find the word *employ*, and mark it out. Carefully read the surrounding text to determine another word that would fit in the blank based on the context of the passage. The correct answer should mean something like "use," since the abettors are employing the artifices *in order to render the support... invidious*. POE anything that has nothing to do with *use*. The correct answer is (B).

36. **A** The question asks about Paine's beliefs about *leadership by right of birth*. He clearly has a negative view, as evidenced throughout Passage 2 with phrases such as *the evil of hereditary succession*, *minds early poisoned by importance,* and *monarchy and succession have laid but the world in blood and ashes*. Eliminate anything positive, including (B) because Paine does not view hereditary succession as useful and (D) because Paine does not see hereditary succession as valuable. Compare (A) and (C). Choice (A) might initially look extreme, but remember that a correct answer can contain extreme wording if the text has equally strong wording. Choice (C) can be eliminated because Paine doesn't believe leadership is about *expressing opinions*. The correct answer is (A).

37. **C** The question asks about Paine's likely response to Burke's statement in lines 22–25. Because this is the first question in a paired set, it can be done in tandem with Q38. Consider the answers for Q38 first. Choice (38A) talks about men who consider themselves *born to reign* who *soon grow insolent*. While this might be an excellent argument against the crown, these lines don't support any of the answers to Q37. Eliminate (38A). Choice (38B) is another specific example of problems with the hereditary crown, but none of the answers for Q37 deal with specific examples. Choice (37A) is the closest thing, but that answer says *address all possible reasons* and that answer is just one reason. Eliminate (38B). Choice (38C) is an argument for the hereditary crown, which is the opposite of Paine's point. Eliminate it. Choice (38D) refers to an entire country denying a fact and believing something false. This supports (37C), so connect those two answers. Without any support from Q38, (37A), (37B), and (37D) can all be eliminated. The correct answers are (37C) and (38D).

38. **D** (See explanation above.)

39. **A** The question asks about Burke's likely response to Paine's statements in the final paragraph of Passage 2, including *...monarchy and succession have laid (not this or that kingdom only) but the*

world in blood and ashes. Because this is the first question in a paired set, it can be done in tandem with Q40. Consider the answers for Q40. Choice (40A) has nothing to do with either qualifying the negative statements about the monarchy from Q39 or the link between stability and *conflicts* in (39A). Eliminate (40A). Choice (40B) states that the people of England *conceive the undisturbed succession of the crown to be a pledge of the stability and perpetuity...of our Constitution*, which supports the idea that monarchy can be a stabilizing force. Connect (40B) to (39A). As part of a contrast, (40C) mentions the *fanatics* who support the monarchy but does not include any support for (39A) or Q39. Eliminate (40C). Choice (40D) continues focusing on the monarchy *enthusiasts* and can also be eliminated. With no support, (39B), (39C), and (39D) can all be eliminated, leaving only one pair of answers. The correct answers are (39A) and (40B).

40. **B** (See explanation above.)

41. **B** The question asks about the relationship between the passages. The two passages do not agree, so (A) and (D) can be eliminated. Neither passage presents a method for *resolving the issues*, so (C) can be eliminated. Passage 2 discusses the specifics of England's violent history in relation to hereditary monarchy, a topic never discussed by Burke in Passage 1. The correct answer is (B).

42. **C** The question asks for the main purpose of the passages. Because this is a general question, it should be done after all the specific questions. Both of these passages deal with hereditary succession and views about the validity of a crown passed down through families. However, this is not all they do. Burke argues for a hybrid of monarchy and elected officials (which is what Paine wants). As a result, their disagreement isn't really so extreme. Burke concedes, especially in the last paragraph, that pure hereditary monarchy is not all it's cracked up to be, while Paine addresses those who support the idea and explains why they are wrong. The correct answer is (C).

43. **D** The question asks for the *primary purpose* of the passage. Since this is a general question, it should be done after the specific questions. The passage discusses the promise of CRISPR technology as well as concerns about how CRISPR technology might be used if it is not well-understood and regulated. Look for an answer that matches this prediction. Eliminate (A) because the passage does not discuss *competing theories*. Eliminate (B) because the passage does not focus on the details of one *study*. Eliminate (C) because the passage does not focus on the *history* of CRISPR technology's *discovery*; instead it focuses on its potential applications. Keep (D) because the passage does *evaluate the prospects* (both positive and negative) of the CRISPR technology. The correct answer is (D).

44. **B** The question asks how the *author's attitude toward CRISPR technology* could best be described. Since this is a general question, it should be done after the specific questions. The author is hopeful that CRISPR technology *will serve well for the well-being of humankind*. However, he also discusses the need for regulation and understanding of *the social, environmental, and ethical implications* of the technology. Look for an answer that matches this prediction. Eliminate (A) because the author is not *unconcerned*. Keep (B) because it matches the prediction; the author is optimistic but recognizes the need for caution. Eliminate (C) because the author's primary attitude is optimism; although he supports caution, he does not express *fear*. Eliminate (D) because the author's positive view is balanced with caution; he does not show *unqualified exuberance*. The correct answer is (B).

45. **B** The question asks what the word *editing* most nearly means as used in line 21. Go back to the text, find the word *editing*, and mark it out. Then read the window carefully, using context clues to determine another word that would fit in the text. The text says, *Such broad successes in a short period of time imply we've arrived at a new genome editing era...By eliminating or replacing specific*

DNA fragments and observing the consequences in the resulting cells, we can now link particular DNA fragments to their biological functions. Therefore, *editing* must mean something like "changing." Eliminate (A) because *abridging* means "making shorter" and does not match "changing." Keep (B) because *altering* matches "changing." Although (C) may be tempting, *revising* means "reviewing" or "creating an improved version;" it does not match the context of eliminating or replacing DNA fragments to learn about them, so eliminate (C). Eliminate (D) because *polishing* does not match "changing." The correct answer is (B).

46. **D** The question asks which statement about *DNA fragments* is true. This is the first question in a paired set, but it is a specific question, so it can be done on its own. Since there is no line reference, use chronology and lead words to find the window for the question. Q45 asks about line 21, so beginning with line 24, scan the passage looking for the lead words *DNA fragments*. Lines 29–36 state, *the majority of information embedded on the DNA fragments are largely unknown. Now, the CRISPR technology is enabling scientists to study those gene functions. By eliminating or replacing specific DNA fragments and observing the consequences in the resulting cells, we can now link particular DNA fragments to their biological functions.* Look for an answer that matches this prediction. Choice (A) is a Mostly Right/Slightly Wrong trap answer: the passage states that *the majority of information embedded* on the fragments is *unknown*; it has not *been discovered*; eliminate (A). Choice (B) is a Right Words, Wrong Meaning trap answer: the passage states that *Studying DNA...sheds light on the mechanisms underlying how diseases develop.* It does not say that DNA fragments are *a mechanism underlying how diseases develop*; eliminate (B). Choice (C) is also a Right Words, Wrong Meaning trap answer: the passage states that the *human genomic DNA sequence* has been *deciphered* and that gene editing technology will help scientists learn more about DNA fragments. It does not say that gene editing technology was used to decipher *the sequence of DNA fragments*; eliminate (C). Keep (D) because it matches the prediction that *CRISPR technology is enabling scientists to...link particular DNA fragments to their biological functions.* The correct answer is (D).

47. **B** The question is the best evidence question in a paired set. Because Q46 was a specific question, simply look at the lines used to answer Q46. Lines 29–36 were used to answer Q46. Of these lines, only lines 33–36 are given as an answer choice for Q47. The correct answer is (B).

48. **A** The question asks what the author suggests about *current approaches to gene therapy.* This is the first question in a paired set, so it can be done in tandem with Q49. Look at the answer choices for Q49 first. The lines for (49A) say that a group of biologists called for a halt to the use of a new gene editing technique on humans. These lines discuss a *new* gene editing technique, not *current approaches* to gene therapy. These lines do not answer Q48, so eliminate (49A). The lines for (49B) say that CRISPR technology *has been demonstrated to be effective in genome editing of most experimental organisms, including cells derived from insects, plants, fish, mice, monkeys and humans.* Look to see whether these lines support any of the answers to Q48. Some of the same words appear in (48C), but the lines for (49B) do not state that *corrected genes* from insects, plants, and fish are currently used in *gene therapy.* The lines for (49B) do not support any of the answers for Q48, so eliminate (49B). The lines for (49C) contrast CRISPR technology with *the current approaches of gene therapy which temporarily fix defective cells or organs.* Unlike the current approaches, the CRISPR technology *promises to correct the defect in the reproductive cells*, producing offspring that do not have the defective gene. This implies that current approaches to gene therapy are not able to protect offspring from receiving a defective gene. Therefore, the lines for (49C) support (48A); draw a line connecting (48A) and (49C). The lines for (49D) state that CRISPR technology promises to *eliminate the root causes of hereditary human diseases*; it may be tempting to connect these lines with (48B), but the passage indicates that CRISPR technology is not yet available. It

is also too extreme to say that the current approaches would be completely obsolete once the CRISPR technology is available, so eliminate (49D). Without support in the answers for Q49, (48B), (48C), and (48D) can be eliminated. The correct answers are (48A) and (49C).

49. **C** (See explanation above.)

50. **C** The question asks for the purpose of the *reference to "higher intelligence, better body appearance and longevity"* in lines 73–74. Use the given line reference to find the window. Lines 72–74 mention *hereditary features that people consider advantageous, such as higher intelligence, better body appearance and longevity.* The author uses *higher intelligence, better body appearance and longevity* as examples of the kinds of *hereditary features that people consider advantageous.* Look for an answer that matches this prediction. Although the text uses the phrase *in theory*, the author does not give the examples to support a theory; instead they are used to illustrate the kinds of traits the author is discussing. Eliminate (A). The author is not making a counterargument, so eliminate (B). Keep (C) because it matches the prediction. Eliminate (D) because these are only examples; they do not *summarize* any point. The correct answer is (C).

51. **C** The question asks what the author suggests about the "ethical guidelines" mentioned in line 82. Use the given line reference to find the window. Lines 81–83 indicate that *prominent scientists in the field have recently initiated calls for ethical guidelines* for using CRISPR technology on reproductive cells. Eliminate answers that are not consistent with the text. Choice (A) is a Right Words, Wrong Meaning trap answer: the text says the guidelines would discourage modifying *reproductive cells for clinical application in humans, until the...implications of such operations* are discussed. It does not say that the guidelines will discourage *further advances*, so eliminate (A). Choice (B) is a Mostly Right/Slightly Wrong trap answer: the text does not say that scientists hope the guidelines will *end human genome modification*, only that they hope it will discourage modification of *reproductive cells* until the implications are discussed. Eliminate (B). Choice (C) is a logical inference from the text. Since the calls for ethical guidelines were *recently initiated*, it's reasonable to assume that the ethical guidelines did not already exist when the CRISPR technology was first developed. Keep (C). Choice (D) is a Mostly Right/Slightly Wrong trap answer: the text says that *scientists do not yet fully understand all the possible side effects of editing human genomes.* Therefore, they do not have a *deep understanding* of this kind of modification. Eliminate (D). The correct answer is (C).

52. **A** The question asks what is suggested by the use of the word *"revolutionary."* Use the given line reference to find the window. The final paragraph states, *There is no doubt that the exciting and revolutionary CRISPR technology, under the guidance of carefully drafted and broadly accepted rules, will serve well for the well-being of humankind.* The word *revolutionary* indicates the author's belief that CRISPR technology will create significant positive changes. Keep (A) because it matches this prediction. Choice (B) is a Mostly Right/Slightly Wrong trap answer: the passage indicates that CRISPR technology is not yet approved for treating humans. Although the technology shows great promise, the text does not say that it has already *dramatically improved human health.* Eliminate (B). Choice (C) is a Could Be True trap answer: it is possible that developing the CRISPR technology required a shift in thinking, but this is not discussed in the passage, so eliminate (C). The passage indicates that the *new ethical guidelines* are not in place yet, so they could not have changed CRISPR's *potential applications.* Eliminate (D). The correct answer is (A).

Section 2: Writing and Language

1. **A** Verbs change in the answer choices. The underlined portion is part of a list in the sentence, so this question tests consistency. There is also the option to DELETE; consider this choice carefully as it is often the correct answer. All items in a list must be phrased in the same way to be consistent with each other. The first two items in the list are verb phrases—*read books* and *look at paintings*—so the third item must also be a verb phrase. Eliminate (D), since deleting the underlined portion eliminates the verb from the phrase. Eliminate (B), as the verb phrase *was watching* is not consistent in form with *read* and *look*. Both (A) and (C) use *watch*, which is consistent with the other items in the list, but (C) also includes *to*. The addition of *to* is not necessary, so eliminate (C). The correct answer is (A).

2. **D** Punctuation changes in the answer choices, so this question tests how to connect ideas with appropriate punctuation. The first part of the sentence, *While a bias still remains, there is no question that the canon, the group of accepted "classic" works*, is not an independent clause. The second part of the sentence, *has become much more diverse*, is also not an independent clause. A semicolon can only be used between two independent clauses, so eliminate (A). The phrase *the group of accepted "classic" works* is not necessary to the main meaning of the sentence—it provides a further definition of the word *canon*—so that phrase should be set off by commas. Choice (B) uses a dash to set off the end of the phrase, which is inconsistent with the punctuation earlier in the sentence, so eliminate (B). Choice (C) does not separate the end of the phrase from the rest of the sentence, so eliminate (C). Choice (D) correctly separates the unnecessary phrase from the rest of the sentence using a comma. The correct answer is (D).

3. **C** Note the question! The question asks which choice *most effectively sets up the information that follows*, so it tests consistency. Eliminate answers that are inconsistent with the purpose stated in the question. The sentence following the underlined phrase claims that there is *no better example of such a marginalization than that of Native Americans*. Look for an answer choice that is consistent with the idea of marginalization. Choice (A) describes the groups as *more vocal than others*, which is inconsistent with the idea of *marginalization*, so eliminate (A). Choice (B), *successful despite the obstacles*, emphasizes success rather than the obstacle of marginalization, so eliminate (B). Choice (C), *forced to stay on the periphery*, is consistent with the idea of *marginalization*, so keep (C). Choice (D), *content to stay out of the public eye*, characterizes the groups as *content* with their marginalization, which is inconsistent with the tone and claims of the rest of the passage, so eliminate (D). The correct answer is (C).

4. **D** Verbs change in the answer choices, so this question tests consistency of verbs. A verb must be consistent in tense with the other verbs in the sentence. The first part of the sentence explains that in his book, Kenneth Lincoln *identifies the change,* which is a present tense verb. To be consistent, the underlined verb must also be in the present tense. Eliminate (A), (B), and (C) because they are not in the present tense. The correct answer is (D).

5. **B** Vocabulary changes in the answer choices, so this question tests precision of word choice. Look for a word with a definition that is consistent with the other ideas in the sentence. The sentence says that, in the nineteenth century, *much of* Native Americans' interactions *with white Americans came in the form of military campaigns*, so the correct word should mean something like "meetings" or "communication." *Repartee* and *banter* both mean "quick, witty conversation," which is a kind of interaction, but these choices are inconsistent with the tone of the sentence, which describes the interactions as usually *in the form of military campaigns.* Eliminate (A) and

(D). *Chatting* means "casual talking," which is also inconsistent with the tone of the sentence, so eliminate (C). *Contact* means "communication," and is general enough to include both verbal communication and military conflict, so keep (B). The correct answer is (B).

6. **D** The number of words changes in the answer choices, so this question could test concision. Check the shortest answer first, which is (D). Choice (D) makes the sentence complete: *When the wars subsided, the American government started a similarly cruel program of assimilation, often involving the movement of Native American children from their homes to "Indian schools" that sought to remove any trace of cultural inheritance.* Keep (D). The underlined phrase follows a comma; (A), (B), and (C) add a new subject and verb to the underlined portion, making the second half of the sentence an independent clause. The first part of the sentence, before the underlined portion, is also an independent clause. A comma cannot connect two independent clauses, so eliminate (A), (B), and (C). The correct answer is (D).

7. **C** Note the question! The question asks which choice *connects the sentence with the previous paragraph*, so it tests consistency of ideas. Determine the subject of the rest of the sentence and find the answer that connects this idea with the previous paragraph. The sentence says that the time period of the *1960s and 1970s* was *an era of cultural reclamation, when the emphasis on "melting-pot"-style assimilation shifted toward an attitude of "multicultural society."* The previous paragraph describes *cruel* methods *of assimilation*, including reeducation, so the correct answer will connect the description of these methods with the shift toward *cultural reclamation* in the later part of the twentieth century. Choice (A) introduces the subject of *lots of anti-war demonstrations*, which is inconsistent with the focus on the status of Native Americans' cultural heritage, so eliminate (A). Choice (B) focuses on the biography of *Kenneth Lincoln*, the literary critic, and is thus inconsistent with the main idea of the previous paragraph, so eliminate (B). Choice (C) references *This practice of assimilation*, and explains that it *had begun to change*, which is consistent with the idea that *the 1960s and 1970s* saw a shift away from the previously described approach to reeducating Native American children; keep (C). Choice (D) claims that *many important things happened* in the 1960s and 1970s, which is too general a claim to be consistent with the purpose of the question: eliminate (D). The correct answer is (C).

8. **D** Note the question! The question asks whether a sentence should be added, so it tests consistency. If the content of the new sentence is consistent with the ideas surrounding it, then it should be added. The paragraph discusses how, in the 1960s and '70s, *the emphasis on "melting-pot"-style assimilation shifted* and *people from all races began to think it possible to live in the United States while at the same time identifying with a particular racial group*. The new sentence discusses how *many groups had been marginalized throughout American history*; this idea is not consistent with the main idea of this paragraph, so it should not be added. Eliminate choices (A) and (B). Eliminate (C), because the sentence does not *make a historical claim that the passage contradicts*; the claim is one that the passage confirms. Choice (D) accurately states that the new sentence *repeats information from earlier in the passage that is already implied in this paragraph*, so keep (D). The correct answer is (D).

9. **D** Transitions change in the answer choices, so this question tests consistency of ideas. A transition must be consistent with the relationship between the ideas it connects. The sentence before the transition states that *Native American children could gain English-language education closer to home*, and the sentence that starts with the underlined transition states that *they could continue to identify with their cultural heritage while gaining an "American" education*. The second sentence provides a positive continuation of the idea in the first sentence, so eliminate (A) and (B), which contain contrasting transitions. Choice (C), *Because*, makes the second sentence incomplete by

introducing a transition word that should not be followed by a comma; eliminate (C). Choice (D), *Moreover*, indicates that the ideas in the two sentences agree with each other, and it does not introduce an incorrect comma. The correct answer is (D).

10. **B** Pronouns and nouns change in the answer choices, so this question tests precision. A pronoun can only be used if it clearly refers to a specific noun earlier in the sentence. The pronoun *them* could refer to *Native Americans*, *colleges and universities*, or *more empathetic attitudes*, so that pronoun is not precise: eliminate (A). Choice (C), *these*, is similarly imprecise: eliminate (C). The pronoun *it* could refer to *This shift* or to *the literary establishment*, so it is also imprecise: eliminate (D). Choice (B), *Native American writers*, is the most precise choice. The correct answer is (B).

11. **D** Note the question! The question asks how to effectively combine the underlined sentences, so it tests precision and concision. The first sentence makes clear that the *efflorescence of Native American writers* who became popular in *the 1970s and 1980s* was the result of increased space for Native writers in literary publications, and the second sentence introduces the list of writers *Leslie Marmon Silko, Gerald Vizenor, and Paula Gunn Allen* as examples of that *efflorescence*; the correct answer should maintain that relationship between the components of the sentences. Choice (A) suggests that these writers' becoming popular was *a resultant efflorescence of Native American writers*, which erases the idea that the efflorescence was the result of increased publishing opportunities; eliminate (A). Choice (B) maintains the correct relationship between the ideas of the sentence, but there is no need to repeat the idea *in those decades*, and the phrase *popularity was earned for writers* is not concise, so eliminate (B). Choice (C) emphasizes the popularity of the three specific writers *in this period of the 1970s and 1980s*, which is not consistent with the original sentences' focus on the overall *efflorescence of Native American writers*, so eliminate (C). Choice (D) most effectively combines the sentences by keeping the focus on *the result* of the publishing shift and by introducing the three writers as examples of *an efflorescence of Native American writers*. The correct answer is (D).

12. **A** Vocabulary changes in the answer choices, so this question tests precision of word choice. Look for a word that is consistent with the other ideas in the sentence. The sentence says that *Anyone who lives in the Mid-Atlantic or New England* will be familiar with *the flowering of spring and the lush greens of summer*, so the correct answer should mean something like "recognizes" or "knows about." *Knows* is consistent with this idea, so keep (A). *Bodes* and *foretells* both mean "predicts," which is inconsistent with the idea of the sentence, so eliminate (B) and (C). *Indicates* means "shows," which is a better description of what the leaves do than what *anyone who lives* in these regions might do, so eliminate (D). The correct answer is (A).

13. **D** The length of the phrase after *never more true than* is changing in the answer choices, so this question tests precision and concision. There is also the option to DELETE; consider this choice carefully, as it is often the correct answer. The sentence already uses the phrase *in the case of fall*, so there is no need to repeat the idea that *fall* is the particular situation under consideration. Choices (A), (B), and (C)—*when people are*, *considering*, and *with the consideration*—all repeat the idea that this case will be particularly significant, so eliminate (A), (B), and (C). Choice (D) is concise and gives the sentence a precise meaning. The correct answer is (D).

14. **B** The length of the phrase after *represents the Northeast in* is changing in the answer choices, so this question tests precision and concision. All four answer choices include the idea that the foliage is representing the Northeast in a state of *purity*, so look for the answer choice that states this idea in the fewest possible words. Choice (B), *its purest state*, is the shortest answer and gives the sentence

a precise meaning, so keep (B). Choice (A) describes the state as *most pure*, and (C) describes it as *the purest possible* state, both of which include unnecessary repetition of the idea of purity: eliminate (A) and (C). Describing the Northeast in a state of purity implies that it is not in a state of impurity, so (D) repeats this idea unnecessarily; eliminate (D). The correct answer is (B).

15. **B** Punctuation changes in the answer choices, so this question tests how to connect ideas with the appropriate punctuation. The word *including* introduces a list of *business owners*; the list is not necessary to the main meaning of the sentence, so the list, as well as the word *including*, should be set off from the rest of the sentence by commas. Eliminate (A) and (D), because they do not use a comma to separate *owners* from *including*. There is no need for a comma between *including* and *restaurant*, so eliminate (C). The correct answer is (B).

16. **A** Transitions change in the answer choices, so this question tests consistency of ideas. A transition must be consistent with the relationship between the ideas it connects. The sentence before the transition states that *foliage season* is *a bit more difficult to predict* than *beach season*; the sentence that includes the underlined transition states that *it is clear* that *leaves tend to change* toward the end of the year, *but when they change and how vivid their colors will be has remained a mystery.* The second sentence provides a more specific example of the general situation described in the first sentence, so the transition word should reflect that relationship between ideas. Choice (A), *for instance*, correctly reflects the relationship between the sentences, so keep (A). Eliminate (B), (C), and (D) because they all contain contrasting transitions, which are inconsistent with the relationship between the sentences. The correct answer is (A).

17. **C** Transitions change in the answer choices, so this question tests consistency of ideas. A transition must be consistent with the relationship between the ideas it connects. The sentence before the transition states that *many people would certainly like to know the cause* of leaf change, and the sentence that begins with the underlined transition explains that *fall without the foliage is like a whole season of rainy beach days.* The second sentence explains a *perspective* underlying the statement in the first sentence, so the correct answer should reflect that relationship between the ideas. Choice (A), *Because of it*, suggests that the second sentence is caused by the fact that *many people would certainly like to know the cause* of foliage changes; this is inconsistent with the ideas of the sentences, so eliminate (A). Choice (B), *subsequently*, suggests that the actions of the second sentence occur later than the events of the first sentence, which is also inconsistent with the ideas of the paragraph: eliminate (B). Choice (C), *After all*, correctly indicates that the perspective represented in the second sentence underlies the idea represented in the first sentence. Keep (C). Choice (D), *Additionally*, suggests that both sentences are examples of the same phenomenon, rather than that the second sentence explains the idea of the first sentence from *a tourism perspective*; eliminate (D). The correct answer is (C).

18. **A** Verbs change in the answer choices, so this question tests consistency of verbs. A verb must be consistent with its subject and with the other verbs in the sentence. The subject of the verb is *Scientists*, which is plural. To be consistent, the underlined verb must also be plural. Eliminate (B), *long knows*, because it is singular. The other main verb in the sentence is *has ever been sure*, which is in the past tense. To be consistent, the underlined verb must also be in the past tense. Eliminate (C), *long know*, and (D), *are long knowing*, because they are in the present tense. The correct answer is (A).

19. **D** Note the question! The question asks whether a sentence should be added, so it tests consistency. If the content of the new sentence is consistent with the ideas surrounding it, then it should be added. The paragraph explains that *no one has ever been sure which aspect of the weather to privilege* in order to understand how *climate conditions influence the changing of the leaves*, and it goes

on to state that *no previous explanation has been able to say why* leaves' changes vary from year to year. The new sentence discusses a report from the *Mount Washington Observatory*, which noted that *the average rainfall in the New Hampshire region is approximately 6–9 inches, depending on the month.* This specific example focuses on one *aspect of the weather* and does not provide a connection between that aspect and the changing of leaves, so it is not consistent with the ideas in the text: the sentence should not be added. Eliminate (A) and (B). While the sentence does introduce *the work of an organization that is not discussed elsewhere*, that work is not the reason the sentence is inconsistent with the main idea of the paragraph: eliminate (C). Choice (D) correctly asserts that the example *is not relevant to the paragraph's description of the general factors that influence fall foliage.* The correct answer is (D).

20. **D** Pronouns change in the answer choices, so this question tests precision. *Their* is a possessive pronoun, so it can only be used in a sentence when it is describing a noun that belongs to multiple other people or things. In the underlined phrase, the pronoun is not describing a noun that belongs to anything—it is referring to *different factors*—so *their* is not the correct pronoun to use. Eliminate (A), (B), and (C). Choice (D), *there are*, correctly uses the word *there* with a plural verb to describe the *factors.* The correct answer is (D).

21. **A** Note the question! The question asks which choice most effectively *adds to the findings described in this paragraph*, so it tests consistency. Eliminate answers that are inconsistent with the purpose of the question. The paragraph states that the group of scientists found that *different factors* affect foliage *in different places*, then mentions how coastal ecosystems and highland ecosystems *reacted* differently to different seasonal frosts. Look for an answer choice that is consistent with the discussion of the scientists' analysis of ecosystems and seasonal change. Choice (A) describes *forests along the coast* as *particularly sensitive to rain and other types of moisture*, which is consistent with the findings mentioned earlier in the paragraph, so keep (A). Choice (B) describes the origin of *the name "fall,"* which is not consistent with the main idea of the paragraph; eliminate (B). Choice (C) describes the difference between *temperatures along the water* and those *in the mountains*, which continues the description of differences between the ecosystems the scientists studied, but the statement in (C) does not add new information to the scientists' findings regarding how ecosystems respond to specific factors, so eliminate (C). Choice (D) describes *the blossoms of the trees* in the spring, which is not consistent with the paragraph's focus on how ecosystems react to frost or other precipitation in different seasons, so eliminate (D). The correct answer is (A).

22. **D** The number of words changes in the answer choices, so this question could test concision. Check the shortest answer first: (C), *suggesting*, makes the sentence incomplete: *Combining these findings with climate-change predictions for the next century, suggesting that the changes will come later in the year for the highlands and perhaps a bit earlier for the coasts.* Eliminate (C). Choices (A) and (B) are the next shortest answers, but neither answer makes the sentence complete, so eliminate (A) and (B). Only choice (D) makes the sentence complete, by adding a subject and a verb to the second half of the sentence: *Combining these findings with climate-change predictions for the next century, the researchers suggest that the changes will come later in the year for the highlands and perhaps a bit earlier for the coasts.* The correct answer is (D).

23. **C** Note the question! The question asks which choice *most effectively completes the contrast in the sentence and is consistent with the information in the rest of the passage*, so it tests consistency of ideas. Determine the subject of the passage and find an answer that is consistent with that idea. The sentence containing the underlined phrase is set up in contrast to the previous sentence, which explains that people referring to *the "fifty-first state"* are usually talking about *Puerto Rico or one of the contemporary U.S. holdings outside the fifty states.* The next sentence in this paragraph describes *the state of Franklin* as *one early case* of *the idea of extra states,* and later paragraphs

describe historical events surrounding the suggestion of forming such a state. Choice (A) claims that *the idea of extra states* is *mainly the concern of academics*, which is not consistent with the focus of the rest of the passage, so eliminate (A). The statement in (B) that the *idea of extra states presents a…challenge*, is not consistent with the rest of the passage, so eliminate (B). Choice (C), *is actually quite an old idea*, asserts that the idea has a long history, while the word *actually* also clearly contrasts with the previous sentence. Keep (C). Choice (D) claims that the idea of a fifty-first state *is rather outdated*, which is not consistent with the rest of the paragraph, so eliminate (D). The correct answer is (C).

24. **A** Note the question! The question asks for the best *sequence* for *the three state names* so the *information in the passage will correspond as closely as possible with the information in the map*, so it tests consistency. The previous sentence explains that *the state of Franklin would be bound* by one state *to the west and south,* another state *to the north,* and a third state *to the southeast.* Look for the answer choice that is consistent with the map and names the correct states in the correct order. According to the map, *Tennessee* is to the west and south of Franklin, so *Tennessee* should be discussed first in the passage: eliminate (B), (C), and (D) because they do not list *Tennessee* first. The correct answer is (A).

25. **B** Punctuation changes in the answer choices, so this question tests how to connect ideas with the appropriate punctuation. The first part of the sentence, *North Carolina, one of the original thirteen colonies, offered a few of its westernmost counties to the federal government as payment for debts*, is an independent clause. The second part, *those that had been incurred—for manpower and ammunition—during the Revolutionary War*, is not an independent clause. A semicolon can only be used between two independent clauses, so eliminate (A). A colon can be used after an independent clause, so keep (B). Choice (C) does not provide any punctuation to connect the two ideas, which is incorrect: eliminate (C). Choice (D) introduces an unnecessary dash between *government* and *as*, so eliminate (D). The correct answer is (B).

26. **D** Apostrophes change in the answer choices, so this question tests apostrophe usage. When used with a pronoun, an apostrophe indicates a contraction. *Its'* is not a word that occurs in English, so eliminate (A). *It's* is the contraction of the words *it is*, which is not needed in the sentence, so eliminate (B) and (C). Choice (D) appropriately uses the possessive pronoun *its* to indicate that both the *offer* and the *western counties* belong to *the state.* The correct answer is (D).

27. **C** Verbs change in the answer choices, so this question tests consistency of verbs. A verb must be consistent with its subject and with the other verbs in the sentence. The subject of the verb is *the three counties*, which is plural. To be consistent, the underlined verb must also be plural. Eliminate (B), *was attempting,* and (D), *is attempting*, because those verbs are singular. The other verbs in the paragraph, *had been developing* and *issued,* are in the past tense. To be consistent, the underlined verb must also be in the past tense. While (A), *having been attempted*, is in the past tense, it makes the sentence incomplete, so eliminate (A). Choice (C), *were attempting*, is in the past tense. The correct answer is (C).

28. **B** Punctuation and the number of words after the word *independence* change in the answer choices, so this question tests how to connect ideas with appropriate punctuation and concision. The first part of the sentence, *Encouraged by the new federal government's quick creation of states from ceded lands, the three counties issued a declaration of independence*, is an independent clause. As the sentence is written, the second part, *their independence was rooted in particular in their distance from North Carolina's state capital*, is also an independent clause. A comma followed by *yet* can be used between two independent clauses, so keep (A). Choices (C) and (D) have an independent clause in the second part of the sentence and also have appropriate punctuation between the two parts

of the sentence. The second part of the sentence in (B) is not an independent clause, and again, it uses appropriate punctuation to connect the two ideas. All four answer choices use correct punctuation to connect the two parts of the sentence, so nothing can be eliminated on that basis. There is no need to repeat the word *independent* in the second part of the sentence, so eliminate (A), (C), and (D). Choice (B) uses correct punctuation, is concise, and gives the sentence a precise meaning. The correct answer is (B).

29. **C** Vocabulary changes in the answer choices, so this question tests precision of word choice. Look for a word whose definition is consistent with the ideas in the sentence. The sentence says that the *territories were eventually granted statehood in 1796, though* not as the state of Franklin, but as *something more recognizable—as the northeastern* edge of *the modern-day state of Tennessee.* The correct word should mean something like "edge" or "limit." *Boarder* means "someone who pays to stay and eat somewhere," so eliminate (A) and (B). *Border* does mean "edge," so keep (C). *Broader* means "wider," so eliminate (D). The correct answer is (C).

30. **A** Note the question! The question asks where the new sentence should be placed *to improve the cohesion and flow of this paragraph*, so it tests consistency of ideas. The sentence must be consistent with the ideas that come both before and after it. The new sentence describes an event *in 1789,* when *North Carolina renewed its offer of the western counties* to the government, so it must come before sentence 2, which describes how *This time, Congress acted quickly and accepted North Carolina's offer.* Therefore, the new sentence should follow sentence 1. The correct answer is (A).

31. **A** Transitions and length of the phrase change in the answer choices. There is a comparison in the sentence, so this question tests consistency. When two things are compared, the verbs used to describe them should be consistent with each other. The first item in the comparison is the phrase *national borders*, which the sentence says *are artificial creations.* In order for the comparison of *national borders* to *state borders* to be consistent, *state borders* should also be the subject of a verb, and the verb describing the state borders should be consistent in tense with the verb *are.* Eliminate (B), because *being* is not consistent with *are.* Eliminate (D), because *state borders* are not the subject of the phrase *the same can be said of.* The beginning of the comparison is *just as*, which suggests that there is a similarity between the status of *national borders* and the status of *state borders*; eliminate (C), because the transition *but also* indicates a contrast rather than a comparison. The correct answer is (A).

32. **A** Note the question! The question asks which choice *best accomplishes* the goal of representing *an attitude of genuine interest* and avoiding *the appearance of mockery*, so it tests consistency in tone. Eliminate answers that are inconsistent with the purpose stated in the question. The sentence suggests a contrast between the *State of Franklin* seeming like *a mere historical* oddity to some people and its representing, for others, a *reminder* of the complexities of *even a powerful, federally oriented nation. Stumper* and *mind-blower* do not match the passage's tone and suggest mockery or dismissal, so eliminate (B) and (D). Choice (C), *thing*, is too general to convey *an attitude of genuine interest*, so eliminate (C). Choice (A), *curiosity*, is consistent with the tone of the sentence and with the purpose of the question. The correct answer is (A).

33. **C** Note the question! The question asks which choice *most effectively concludes the sentence and paragraph*, so it tests consistency. Earlier, the paragraph states that the history of Franklin *provides a unique look into some of the early machinations of the newly formed American government* and that it is an example of how, *just as national borders are artificial creations,* so *state borders* are also *always subject to change.* The sentence including the underlined phrase suggests that Franklin is a *reminder* of an aspect of *a powerful, federally oriented nation*; look for an answer that is consistent with the example of Franklin in relation to the larger-scale example of a nation overall. Choice

(A) is inconsistent with the main idea of the paragraph, focusing on the number of *states* instead of how Franklin is a reminder of the artificiality of borders, so eliminate (A). Choice (B), *very important in the world and in history*, is not consistent with the rest of the paragraph, which is that a federally oriented nation is subject to change, so eliminate (B). Choice (C) describes the nation as *a living, breathing thing, ever subject to change,* which is consistent with the rest of the paragraph, so keep (C). Choice (D) describes the nation as *home to many things of historical interest*, which does not clarify how the example of Franklin relates to the changeable status of the nation overall, so eliminate (D). The correct answer is (C).

34. **A** Verbs change in the answer choices, so this question tests consistency of verbs. A verb must be consistent with its subject and with the other verbs in the sentence. The subject of the verb is *you*, which is a second-person pronoun. To be consistent, the underlined verb must also be in a second-person form. Eliminate (D), because *sees* is not a second-person verb form and does not work with *you*. The other verbs in the sentence containing the underlined portion are *cross* and *drive*, which are present-tense verbs. To be consistent, the underlined verb must also be in the present tense. Eliminate (B) and (C), because they are not in the present tense. The correct answer is (A).

35. **C** Note the question! The question asks whether a sentence should be added, so it tests consistency. If the content of the new sentence is consistent with the ideas surrounding it, then it should be added. The paragraph describes the importance of *civil engineers*, claiming that their field of work *has long been necessary for the functioning of modern government.* The new sentence repeats the idea that *few governments in the modern world could function without the work of civil engineers*, so it should not be added. Eliminate (A) and (B). Choice (C) accurately notes that the new sentence restates *an idea expressed in the previous sentence*, so keep (C). Choice (D) incorrectly claims that the new sentence would be *a digression from the main point of the paragraph,* so eliminate (D). The correct answer is (C).

36. **B** Vocabulary changes in the answer choices, so this question tests precision of word choice. Look for a word whose definition is consistent with the other ideas in the sentence. The sentence identifies the role *civil engineers will continue to* fill in *modern societies* for as long as *people need to get to school or work*, so the correct word must mean something like "important people." *Beginnings* means "starting points," so eliminate (A). *Cornerstones* means "important point" and can be used to describe people, so keep (B). *Basics* means "essential elements" but cannot be used to describe people, so eliminate (C). *Footings* means "concrete bases of a wall," so eliminate (D). The correct answer is (B).

37. **A** Transitions change in the answer choices, so this question tests consistency of ideas. A transition must be consistent with the relationship between the ideas it connects. The sentence before the transition provides a definition of the *profession* of civil engineers as *"the design and maintenance of public works,"* while the sentence that begins with the underlined transition states that *civil engineers design and maintain components of energy and transportation systems.* The second sentence restates the definition provided as a quotation in the first sentence. Keep (A), *In other words*, because this transition is consistent with the relationship between the two sentences. Choices (B), *On the other hand*, and (C), *Nonetheless,* suggest that the two ideas are in contrast to one another, which is inconsistent with the relationship between the ideas: eliminate (B) and (C). Choice (D), *In the abstract,* suggests that the second sentence provides a less-concrete definition of civil engineering than does the first sentence, which is not accurate; eliminate (D). The correct answer is (A).

38. **A** Punctuation changes in the answer choices, so this question tests how to the connect ideas with the appropriate punctuation. The phrase *like the Hoover Dam, the Holland Tunnel, or the interstate system that covers the whole country* is not necessary to the main meaning of the sentence, so it should be set off using a pair of matching punctuation marks. Choice (A) correctly uses the same punctuation mark, a pair of dashes, at the beginning and the end of the list. Eliminate (B) because semicolons cannot be used to set a phrase off from the rest of the sentence. Eliminate (C) and (D) because they both use a colon at the beginning of the list and a different type of punctuation at the end of the list. The correct answer is (A).

39. **D** Punctuation changes in the answer choices, so this question tests how to connect ideas with the appropriate punctuation. The first part of the sentence, *Their backgrounds tend to vary*, is an independent clause. The second part of the sentence, *specialties can range from architecture to environmental engineering, from ecology to urban planning*, is also an independent clause. The word *however* would not affect either part of the sentence, whether it is included at the end of the first part or at the beginning of the second part. Two independent clauses must be separated by some type of punctuation other than a comma alone, so eliminate (B) and (C). Choice (A) places *however* at the beginning of the second part of the sentence, which would indicate a contrast between the two parts of the sentence. The ideas in both parts of the sentence agree, so eliminate (A). Choice (D) appropriately uses a period between the two independent clauses and places *however* at the end of the first independent clause. This makes it clear that the contrast is between the first sentence of the paragraph and this sentence. The correct answer is (D).

40. **B** The length of the underlined phrase changes in the answer choices, so this question tests concision. *Creating, fabricating*, and *making* all mean the same thing in this context, so it is not necessary to use more than one term; eliminate (A), (C), and (D). Choice (B) is concise and gives a precise meaning to the sentence. The correct answer is (B).

41. **B** Note the question! The question asks where sentence 3 should be placed, so it tests consistency of ideas. There is also the option to DELETE; consider this choice carefully, as it is often the correct answer. The sentence must be consistent with the ideas that come both before and after it; if it is inconsistent with the entire paragraph, it should be deleted. Sentence 3 says that people *who want a greener country draw on the expertise of civil engineers in designing windmills and other sustainable sources of energy.* This topic is consistent with ideas discussed throughout the paragraph, so eliminate (D): the sentence should not be deleted. Because sentence 3 introduces *those who want a greener country*, a group with a specific stance on environmental issues, it should not come before sentence 4, which states that *Environmental engineering has been particularly popular of late on both sides of the environmental debate.* Eliminate (A). Sentence 5 introduces another group with a specific environmental stance, but it describes that group as *less concerned with long-term energy sources*; the word *less* suggests that this group is being compared to another, already-described group that is *more* concerned with sustainable energy. Sentence 3 names just such a group, so sentence 3 should come after sentence 4 but before sentence 5: eliminate (C). The correct answer is (B).

42. **C** Note the question! The question asks which choice *results in a sentence that best supports the point developed in this paragraph*, so it tests consistency. Eliminate answers that are inconsistent with the purpose stated in the question. The paragraph states that the field of civil engineering is expected to *grow by nearly 20% between 2012 and 2022* and that *every new development in energy or transportation* presents *a new set of problems* for engineers to tackle, so look for an answer choice that is consistent with the idea that the field is expanding. Choice (A) mentions

that the field is *full of interesting people* but does not directly support the idea that the field is growing, so eliminate (A). Choice (B) focuses on how *complicated* the field already is, not on its expansion, so eliminate (B). Choice (C), *constantly growing*, is consistent with the main idea of the paragraph, so keep (C). Choice (D) claims that the field is *difficult to describe*, which is inconsistent with the paragraph: eliminate (D). The correct answer is (C).

43. **D** Pronouns change in the answer choices, so this question tests consistency of pronouns. A pronoun must be consistent in number with the noun it refers to. The underlined pronoun refers to the noun *a civil engineer*, which is singular. To be consistent, the underlined pronoun must also be singular. Eliminate (A) and (B), because they contain the plural pronoun *they*. Choice (C) also contains the plural pronoun phrase *all of them*, so eliminate (C). Choice (D) appropriately uses the singular pronouns *he or she*. The correct answer is (D).

44. **C** The length of the phrase surrounding *civil engineering* changes in the answer choices, so this question tests precision and concision. *Civil engineering* is the name of the profession, so there is no need to repeat the idea that civil engineering is a *career* or a type of *work*. Eliminate (A), (B), and (D). Choice (C) is concise and makes the meaning of the sentence precise. The correct answer is (C).

Section 3: Math (No Calculator)

1. **B** The question asks for the value of $g(-3)$. Solve for k first by plugging in 9 for x into the function to get $\frac{5}{3}(9) + k = 12$. Do the multiplication on the left side to get $15 + k = 12$, then subtract 15 from both sides of the equation to get $k = -3$. Therefore, $g(x) = \frac{5}{3}x - 3$, and $g(-3) = \frac{5}{3}(-3) + (-3) = -5 - 3 = -8$. The correct answer is (B).

2. **B** The question asks for the value of k in the system of equations. Get rid of the fraction in the second equation by multiplying both sides of the equation by k to get $h = 5k$. Substitute $5k$ for h in the first equation to get $3(k + 2) = 5k$. Distribute the 3 to get $3k + 6 = 5k$. Subtract $3k$ from both sides of the equation to get $6 = 2k$, so $3 = k$. The correct answer is (B).

3. **D** The question asks for the expression that is equal to 1. Set the expressions in each of the answer choices equal to 1 and solve for y. Choice (A) becomes $|2 - y| + 2 = 1$ or $|2 - y| = -1$. The result of an absolute value is always greater than or equal to 0, so this doesn't work. Eliminate (A). The same thing happens with (B) and (C). Only (D) works: $|2 - y| - 2 = 1$ or $|2 - y| = 3$, which happens when $y = -1$ or 5. Therefore, the correct answer is (D).

4. **A** The question asks for a true statement given that $\frac{x + y}{x} = \frac{6}{5}$. Pick an easy value for x, such as $x = 5$, and solve for y. The equation becomes $\frac{5 + y}{5} = \frac{6}{5}$, so $5 + y = 6$ and $y = 1$. Try these values in the answer choices to see which one works. Choice (A) becomes $\frac{1}{5} = \frac{1}{5}$. This is true, so

keep (A), but check the rest of the answers to be sure. Choice (B) becomes $\frac{1}{5} = \frac{11}{5}$, (C) becomes $\frac{5+1}{5} = \frac{1}{5}$, and (D) becomes $\frac{5-2(1)}{5} = -\frac{1}{5}$. None of these are true, so eliminate (B), (C), and (D). The correct answer is (A).

5. **A** The question asks for the expression that is equal to $g(-2x)$. Put $-2x$ in for x in the function to get $g(-2x) = -4(-2x) - 7 = 8x - 7$. The correct answer is (A).

6. **D** The question asks for an expression that is equivalent to a factored quadratic. Use FOIL (First, Outer, Inner, Last) to expand the quadratic to get $4(15x^2 - 6x - 10x + 4)$. Focus on distributing the 4 just to the first part in parentheses to see that the first term is $4(15x^2) = 60x^2$. Eliminate (A) and (B). Likewise, the last term must be $4(4) = 16$. Therefore, eliminate (C). The correct answer is (D).

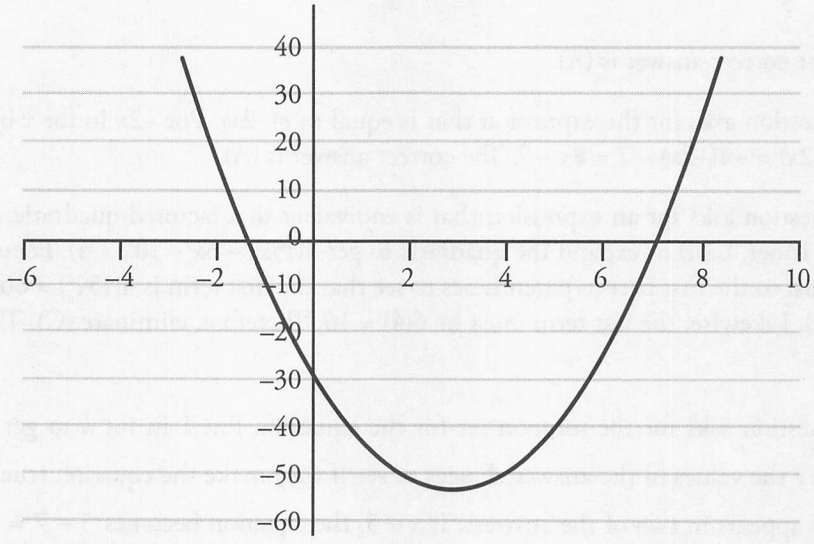
7. **C** The question asks for the solution set for the equation. Put 1 in for k to get $x - 7 = \sqrt{x-1}$. Now try the values in the answer choices to see if they make the equation true. Start with $x = 5$ since 5 appears in two of the answers. If $x = 5$, the equation becomes $5 - 7 = \sqrt{5-1}$. Simplify both sides of the equation to get $-2 = \sqrt{4}$. The square root of a number is always a positive value. Therefore, this expression is untrue. Eliminate (B) and (D). Next, try $x = 1$. If $x = 1$, the equation becomes $1 - 7 = \sqrt{1-1}$. Simplify both sides of the equation to get $-6 = \sqrt{0}$. This is also untrue, so eliminate (A). The correct answer is (C).

8. **C** The question asks for the best description of how Alexei's weightlifting changed over the course of his training program. All the answers refer to a number of pounds, and three of them are pounds per day, so calculate his increase in pounds per day. According to the question, Alexei increased the amount he lifted by $225 - 180 = 45$ pounds over $24 - 6 = 18$ days. Calculate his daily increase to get $45 \div 18 = 2.5$ pounds per day. The correct answer is (C).

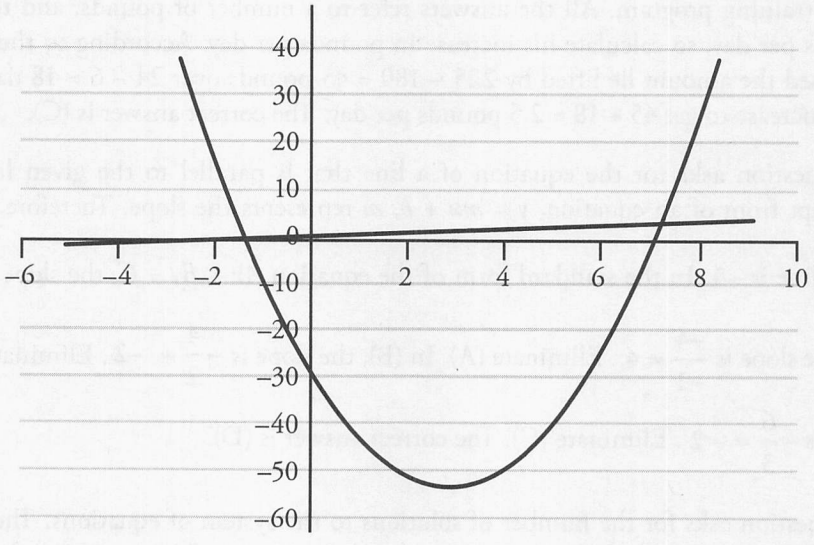
9. **D** The question asks for the equation of a line that is parallel to the given line. In the slope-intercept from of an equation, $y = mx + b$, m represents the slope. Therefore, the slope of the given line is -4. In the standard form of the equation $Ax + By = C$, the slope equals $-\frac{A}{B}$. For (A), the slope is $\frac{-4}{-1} = 4$. Eliminate (A). In (B), the slope is $-\frac{4}{2} = -2$. Eliminate (B). In (C), the slope is $-\frac{6}{3} = -2$. Eliminate (C). The correct answer is (D).

10. **B** The question asks for the number of solutions to the system of equations. The first equation is a parabola, because if the factors were multiplied out, it would contain an x^2 term. The second equation is a line, because there is no exponent attached to x. The two can, at most, have two points of intersection, so eliminate (A). Next, draw a rough sketch of the parabola. Start by finding the roots of the equation by setting each of the binomials in the parentheses equal to 0. If $x - 7 = 0$, then $x = 7$. Therefore, one point on the parabola is (7, 0). If $3x + 4 = 0$, then $3x = -4$,

and $x = -\frac{4}{3}$. Therefore, a second point on the parabola is $\left(-\frac{4}{3}, 0\right)$. Lastly, plug in 0 for x to get $y = (0 - 7)[3(0) + 4] = (-7)(4) = -28$. Therefore, a third point on the graph is $(0, -28)$. Connecting the three points should yield a graph like this:



Next, draw the line. Rearrange the equation into slope-intercept form, $y = mx + b$, where m stands for the slope and b stands for the y-intercept. This is $y = \frac{1}{3}x + \frac{1}{3}$. Therefore, the line has a slope of $\frac{1}{3}$, and a y-intercept of $\frac{1}{3}$. A rough sketch of the line would look like this:



It is clear from a rough drawing of the two equations that the line must cross the parabola twice. The correct answer is (B).

11. **A** The question asks for the expression that represents how much Peggie and Joan each paid. The information about the prices is given in terms of the variable d, so pick a value for d. If $d = 10$, then Joan's bouquet costs $10 - 4 = \$6$. The combined cost of both bouquets is $10 + 6 = \$16$,

which means that each of them paid \$16 ÷ 2 = \$8 for the bouquets before the tax was added. The tax on each share is \$8 × 0.15 = \$1.20, which means that each of them paid a total of \$8 + \$1.20 = \$9.20. Put 10 in for d in each of the answers to see which answer equals the target of \$9.20. Choice (A) becomes $1.15(10) - 2.3 = 11.50 - 2.3 = 9.2$. This matches the target, but check the remaining answers just in case. Choice (B) becomes $2(10) - 1.15 = 20 - 1.15 = 18.85$. Eliminate (B). Choice (C) becomes $2.15(10) - 2 = 21.5 - 2 = 19.5$. Eliminate (C). Choice (D) becomes $2.3(10) - 4.6 = 23 - 4.6 = 18.4$. Eliminate (D). Therefore, the correct answer is (A).

12. **A** The question asks for the value of z in the equation. Get rid of the fraction by multiplying both sides of the equation by $(z + 3)$ to get $z - 3 = 8(z + 3)$. Distribute the 8 to get $z - 3 = 8z + 24$. Add 3 to both sides of the equation to get $z = 8z + 27$, then subtract $8z$ from both sides to get $-7z = 27$. Finally, divide both sides by -7 to get $z = -\frac{27}{7}$. The correct answer is (A).

13. **C** The question asks for the solutions for x in the quadratic. There is a lot going on here, so pick some numbers for the variables. It isn't easy to pick numbers for all three and have the equation work, so just pick numbers for two variables. Let $x = 3$ and $v = 6$. The equation becomes $(3)^2 - 3t = \frac{6}{3}(3)$. Solve for t to get $9 - 3t = 6$, and $t = 1$. In the answers, plug in 6 for v and 1 for t to see which answer could return a value of 3 for x. Choice (A) becomes $\frac{6}{3} \pm \frac{\sqrt{6^2 + 4(1)}}{3} = 2 \pm \frac{\sqrt{40}}{3}$, which will not come out to an integer like 3. Eliminate (A). Choice (B) becomes $\frac{6}{3} \pm \frac{\sqrt{6^2 + 36(1)}}{6} = 2 \pm \frac{\sqrt{72}}{6}$, which won't be an integer either. Eliminate (B). Choice (C) becomes $\frac{6}{6} \pm \frac{\sqrt{6^2 + 108(1)}}{6} = 1 \pm \frac{\sqrt{144}}{6} = 1 \pm \frac{12}{6} = 1 \pm 2 = 3$. Keep (C), but check (D) just in case. Choice (D) becomes $\frac{6}{6} \pm \frac{\sqrt{6^2 + 4(1)}}{6} = 1 \pm \frac{\sqrt{40}}{6}$. This won't be an integer, either. The correct answer is (C).

14. **C** The question asks for the value of s on a figure for which two equations intersect at points $(0, s)$ and $(0, -s)$. To find the value of s, plug either of these points into either equation and solve for s. It is easier to use the first point in equation A to avoid having to deal with negative signs. Plugging $(0, s)$ into $x = 18y^2 - 2$ results in $0 = 18s^2 - 2$. Add 2 to both sides to get $2 = 18s^2$, then divide both sides by 18 to get $\frac{2}{18} = s^2$ or $\frac{1}{9} = s^2$. Take the square root of both sides to find that $s = \frac{1}{3}$. The correct answer is (C).

15. **B** The question asks for the value of a when a complex number is written in the form $a + bi$. To get i out of the denominator of a fraction, multiply by the complex conjugate of the denominator. Multiply the top and bottom of the fraction by $(4 - 3i)$ to get $\frac{(18 + i)(4 - 3i)}{(4 + 3i)(4 - 3i)} = \frac{72 - 54i + 4i - 3i^2}{16 - 9i^2}$. Because $i = \sqrt{-1}$, $i^2 = -1$. Substitute -1 for i^2 to get $\frac{72 - 54i + 4i - 3(-1)}{16 - 9(-1)}$

$= \frac{72 - 50i + 3}{16 + 9} = \frac{75 - 50i}{25}$. The full equation becomes $3 - 2i = a + bi$. Therefore, $a = 3$. The correct answer is (B).

16. $\frac{5}{8}$ or **0.625**

The question asks for the sine of $b°$, where b is an angle measurement marked on the figure. In a right triangle with angles $a°$ and $b°$, $\cos a = \sin b$. Knowing this fact about the complementary angles of a right triangle makes questions like this easier. Without that knowledge, trying out some numbers can help. Convert 0.625 to a fraction, which is $\frac{5}{8}$. Cosine is defined as $\frac{\text{adjacent}}{\text{hypotenuse}}$, so label the side next to a as 5 and the hypotenuse as 8. Sine is defined as $\frac{\text{opposite}}{\text{hypotenuse}}$, and the side opposite b is the side that is 5. Therefore, $\sin a° = \frac{5}{8}$, or 0.625. Either one can be entered into the grid as the correct answer.

17. **3** The question asks for the width of the walkway on the diagram. Imagine the triangle as a right triangle with a height of 24 feet and a hypotenuse of $l + \frac{1}{4}l + \frac{3}{4}l = 2l$. The proportions that hold for the hypotenuse also hold for the height. To solve for the width, set $2l = 24$, which means that $l = 12$, and $\frac{1}{4}l = \left(\frac{1}{4}\right)(12) = 3$. This is the correct answer.

18. **1** The question asks for the value of y in the system of equations. Try to get one of the variables to disappear. Multiply the first equation by 2 to get $16x - 10y = 54$. Stack the two equations on top of each other and add them together to get:

$$\begin{array}{rr} & 16x - 10y = 54 \\ + & \underline{5x + 10y = 30} \\ & 21x \quad\quad = 84 \end{array}$$

Divide both sides of this answer by 21 to get $x = 4$. Plug 4 in for x into the second equation to get $5(4) + 10y = 30$. This becomes $20 + 10y = 30$. Subtract 20 from both sides to get $10y = 10$, so $y = 1$. This is the correct answer.

19. $\frac{20}{9}$ or **2.22**

The question asks for the change in pressure for every additional 5 feet in depth below sea level. The difference in the values given for p is $110 - 90 = 20$. The difference in the depths for which the values of p are known is $215 - 170 = 45$ feet. Therefore, the pressure increase for every one foot of depth is $\frac{20}{45}$, which reduces to $\frac{4}{9}$. The question asks for the increase every 5 feet,

though, so multiply this value by 5 to get $\frac{20}{9}$, or 2.22. Either one can be entered into the grid as the correct answer.

20. **4** The question asks for the value of x in a fourth-degree polynomial. Look for ways to factor things out of pairs of terms. Factor x^2 out of the first two terms to get $x^2(x-4) + 3x - 12 = 0$. Factor a 3 out of the last two terms to get $x^2(x-4) + 3(x-4) = 0$. Pulling out the $(x-4)$ from both parts will leave the x^2 and the 3, so the equation becomes $(x^2+3)(x-4) = 0$. Therefore, one of the solutions to the equation is $x - 4 = 0$. Solve for x to get $x = 4$. The other solutions come from $x^2 + 3 = 0$, so $x^2 = -3$. This will yield imaginary solutions, so the only real solution is 4. This is the correct answer.

Section 4: Math (Calculator)

1. **D** The question asks for the expression that represents the time Walter will take to run the 40-yard dash after w weeks. No value is given for w, so pick a number. Let $w = 2$. In two weeks, his training time will be $7.2 - (0.2)(2) = 7.2 - 0.4 = 6.8$ seconds. Plug 2 in for w in each of the answers to see which answer equals the target answer of 6.8. Choice (A) becomes $0.2 - 7.2(2) = 0.2 - 14.4 = -14.2$. Eliminate (A). Choice (B) becomes $6.0 - 0.2(2) = 6.0 - 0.4 = 5.6$. Eliminate (B). Choice (C) becomes $7.2 + 0.2(2) = 7.2 + 0.4 = 7.6$. Eliminate (C). Check (D) just to be sure: $7.2 - 0.2(2) = 7.2 - 0.4 = 6.8$. Therefore, the correct answer is (D).

2. **B** The question asks for the length of each piece of yarn, in inches. Start by converting the yards to inches by setting up the following proportion: $\frac{1 \text{ yard}}{36 \text{ inches}} = \frac{4 \text{ yards}}{x \text{ inches}}$. Cross-multiply to get $x = (36)(4) = 144$ inches. After the first cut, the yarn's length is $144 \div 2 = 72$. After the second cut, the yarn's length is $72 \div 4 = 18$. The correct answer is (B).

3. **C** The question asks for the length of Edward's ride, in miles, based on the price he paid. Start by subtracting the base fee to get $3.60 - 2.40 = 1.20$. Divide this amount by the cost per mile to get $1.20 \div 0.30 = 4$ miles. The correct answer is (C).

4. **B** The question asks for the number of miles Irina cycled. Translate the information into equations. Let T represent the number of miles Tiki cycled and I represent the number of miles Irina cycled. According to the question, $T + I = 51$, and $T = I - 13$. Substitute the second equation into the first to get $(I - 13) + I = 51$. Combine like terms to get $2I - 13 = 52$, then add 13 to both sides to get $2I = 64$. Therefore, $I = 32$. Another approach is to plug in the answers. Either way, the correct answer is (B).

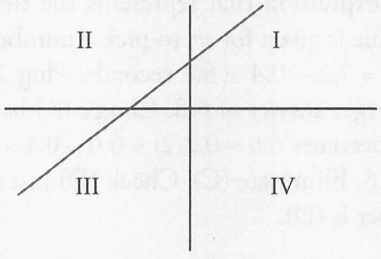
5. **C** The question asks for the number of amps flowing through a certain circuit. According to the question, resistance = voltage applied ÷ number of amps. Plug the numbers given into the equation to get $9 = 54 \div x$. Solve for x to get $x = 6$. The correct answer is (C).

6. **C** The question asks for the expected number of students with O-positive blood type based on the results of a random sample. According to the sample, 38.7% of the class would be expected to have O-positive blood. Multiply the total by the percent to get $265 \times 0.387 \approx 103$. This is close to 100. Therefore, the correct answer is (C).

7. **A** The question asks for the probability that a randomly selected viewer aged 35 to 64 would prefer network *D*. Probability is defined as the number that fit the requirements divided by the total. The total number of 35- to 64-year-old viewers is 63,574 + 20,482 = 84,056. The total number of viewers in that age range who preferred network *D* is 12,084 + 3,676 = 15,760. Therefore, the probability that a viewer in this age group preferred network *D* is $\frac{15{,}760}{84{,}056} \approx 0.2$. The correct answer is (A).

8. **B** The question asks for the proportion of pieces of furniture that were desks made of maple. According to the table, there were 75 total pieces of furniture made, of which 9 were desks made of maple. Therefore, the proportion of maple desks is $\frac{9}{75} = \frac{3}{25}$. The correct answer is (B).

9. **A** The question asks for a true statement about the slope of a line that goes through Quadrants I, II, and III only. Draw an *xy*-plane, labeling the quadrants going counter-clockwise from the upper right quadrant. Then draw the line going through quadrants I through III. It should look like this.



From the drawing, it is clear that the line has a positive slope. The correct answer is (A).

10. **D** The question asks for a possible equation for the function *g* based on the *x*-intercepts. For the graph to have *x*-intercepts at –2, 2, and 5, the expression must equal 0 when $x = -2$, $x = 2$, and $x = 5$. For each answer choice, set each binomial equal to 0 to see if it results in these values for *x*. For (A) and (C), there is a squared binomial times another binomial. For (A), if $(x - 2) = 0$, $x = 2$, but that root will appear twice, leading to only 2 distinct roots. For this reason, eliminate (A) and (C). For (B), the first root is 2, then $(x + 2) = 0$ gives a root of $x = -2$, and $(x + 5) = 0$ gives a root of –5. Eliminate (B). The roots for (D) will be 5, 2, and –2, respectively. The correct answer is (D).

11. **C** The question asks for the brain weight of the animal with the greatest body weight. That animal is represented by the point furthest to the right along the *x*-axis, so the animal weighs approximately 125 kilograms. Look to the *y*-axis to see that the same animal has a brain weight of 140 grams. Therefore, the correct answer is (C).

12. **D** The question asks for the species whose brain weight to body weight ratio is the smallest. The brain weight is given in grams but the body weight is given in kilograms, and 1 kilogram = 1,000 grams. Calculate the ratio of each of the points given in the answers in grams. The ratio in (A) is $\frac{70}{10(1{,}000)} = \frac{7}{1{,}000} = 0.007$. The ratio in (B) is $\frac{50}{30(1{,}000)} = \frac{5}{3{,}000} = 0.00\overline{16}$. Since this is less than the ratio in (A), eliminate (A). The ratio in (C) is $\frac{110}{65{,}000} = 0.00169$. Since this is bigger than (B), eliminate

(C). The ratio in (D) is $\frac{130}{105{,}000} = 0.00124$. Since this is smaller than (B), eliminate (B). The correct answer is (D).

13. **A** The question asks for the scatterplot that could represent the function f. First, because an exponent other than 1 is applied to the fraction, the function is not a linear function. Because the scatterplots in (B) and (D) suggest a linear relationship between x and y, eliminate (B) and (D). Next, plug in some numbers to see what happens when x gets larger. If $x = 1$, $j = 4$, and $k = -2$, the function becomes $f(1) = \left(\frac{4}{1}\right)^{-2} = 4^{-2} = \frac{1}{4^2} = \frac{1}{16}$. If $x = 100$, $j = 4$, and $k = -2$, the function becomes $f(100) = \left(\frac{4}{100}\right)^{-2} = \left(\frac{1}{25}\right)^{-2} = 625$. Therefore, according to the function, as x increases, y also increases. Of the remaining answer choices, this is not true for (C). Eliminate (C). The correct answer is (A). Another option would be to choose some values for the variables j and k and then graph the function on a graphing calculator.

14. **D** The question asks for the relationship between time and the number of bacteria in a lab culture. Over time, the estimated number of bacteria is clearly decreasing. Therefore, eliminate (A) and (C), which both indicate an increase. If the number of bacteria were decreasing linearly, then it would be decreasing by the same amount every hour. However, between hours 0 and 2, the number of bacteria decreased by 900,000, whereas between hours 2 and 4, the number of bacteria decreased by only 90,000. Since the rate of decrease is not the same every hour, eliminate (B). The correct answer is (D).

15. **C** The question asks for the difference in value between two savings bonds after one year, so find the value of each savings bond. The value of Pete's bond after one year would be $20{,}000\left(1 + \frac{6}{400}\right)^4$, and the value of Roger's savings bond after one year would be $20{,}000\left(1 + \frac{4}{400}\right)^4$. The difference in the value of their two bonds would be $20{,}000\left(1 + \frac{6}{400}\right)^4 - 20{,}000\left(1 + \frac{4}{400}\right)^4$. Since both of them started with savings bonds in the same amount and held them over the same time period, the difference in the value of the bonds is equal to the difference in their earnings. The correct answer is (C).

16. **A** The question asks for the factor that is represented by the slope of a graph. To see what's happening here, pick two values for x, for example, $x = 2$ and $x = 3$, and find the corresponding y-values. When $x = 2$, then $f(x) = 500 + 80(2 - 1) + 70(2) = 720$. When $x = 3$, then $f(x) = 500 + 80(3 - 1) + 70(3) = 870$. Two points on the graph would then be (2, 720) and (3, 870). Next, calculate the slope: $\frac{y_2 - y_1}{x_2 - x_1} = \frac{870 - 720}{3 - 2} = 150$. Now check the answer choices. For (A), the combined daily cost of the hotel and car rental is 70 + 80 = 150. This matches the value for the slope. The correct answer is (A).

17. **B** The question asks for the number of days at which the cost of package Q will be less than or equal to the cost of package P. According to the equation given, the total cost of package P is $400 + 85(x - 1) + 60x$, and the total cost of package Q is $550 + 75(x - 1) + 50x$, where x is the number of days traveled. Pick a number of days to try out, and eliminate answers accordingly. Try $x = 8$ days. The cost

cost of package $P = 400 + 85(8 - 1) + 60(8) = 400 + 595 + 480 = 1{,}475$, and the cost of package $Q = 550 + 75(8 - 1) + 50(8) = 550 + 525 + 400 = 1{,}475$. The cost of the two packages is the same at 8 days, which fits the requirements of the question. Eliminate (D), since that range does not include 8. Now try a different value such as $x = 7$. Package P would cost $400 + 85(6) + 60(7) = 1{,}330$, and package Q would cost $550 + 75(6) + 50(7) = 1{,}350$. Travel package Q is not less than or equal to the total cost of travel package P, so eliminate ranges that include 7. This eliminates (A) and (C). The correct answer is (B).

18. **D** The question asks for the graph the fits the description of Moore's law. Use Process of Elimination. According to Moore's Law, the maximum number of transistors that can be placed on a circuit each year doubles. If there was 1 transistor to start, the next year there would be 2, then 4, then 8, then 16. The number of transistors would increase more and more rapidly over the years, which indicates exponential growth. Choice (A) is a flat, horizontal line, showing no growth at all, and (B) has flat sections, showing periods of no growth. Eliminate (A) and (B). Choice (C) shows growth, but it is a line, which indicates growth at a constant rate. Eliminate (C). Only (D) shows growth that increases exponentially. The correct answer is (D).

19. **A** The question asks for the greatest number of buckets Bob can fill from a drum of oil. Start by determining the volume of the oil he has in cubic feet. The volume of a cylinder can be calculated as $V = \pi r^2 h$. According to the information given, the radius of each bucket is 0.5 feet and the height of the oil in each bucket is 1.5 feet. Therefore, the volume of the oil in each bucket is $\pi(0.25)(1.5) \approx 1.1781$ cubic feet. Set up the following proportion: $\frac{1 \text{ gallon}}{0.133 \text{ feet}^3} = \frac{x \text{ gallons}}{1.1781 \text{ feet}^3}$. Cross-multiply to get $0.133x = 1.1781$. Divide both sides of the equation by 0.133 to get $x = 8.858$ gallons per bucket. Bob has 55 gallons of oil, so he can fill $55 \div 8.858 \approx 6.2$ buckets. Only round at the last step to ensure a correct answer when the choices are close together. The question asks for the number of full buckets, so round this down to 6. The correct answer is (A).

20. **B** The question asks for the greatest possible value of $2x - 5$, so there is no need to solve all the way for x. Just make the first inequality look like the second one. Start by subtracting 5 from both sides of the inequality to get $2x \leq 4$. Subtract 5 from each side again to get $2x - 5 \leq 4 - 5$ or $2x - 5 \leq -1$. Therefore, the greatest possible value is –1. The correct answer is (B).

21. **D** The question asks for the length of $\overline{PR}$, which is a diameter, and it says that the length of arc $\overset{\frown}{PQR}$ is 18π. An arc formed by the diameter is a semicircle. The length of a semicircle is equal to half the circumference of the circle, so the circumference of the circle is $18\pi \times 2 = 36\pi$. The formula for the circumference of a circle is $C = \pi d$, so $36\pi = \pi d$. Divide both sides by π to get $36 = d$. The correct answer is (D).

22. **A** The question asks which data points on a scatterplot are below the line $y = x$. To see what happens when a point is below a line, sketch a line on the coordinate plane and a point below it. The y-coordinate of the point is lower than the y-coordinate of the line at that same value of x. In the case of the line $y = x$, a point is below the line if its y-value is less than its x-value. According to the question, the y-value is equal to a city's average temperature in 2010 and the x-value is equal to the city's average temperature in 2000, so find cities in which the average temperature in 2010 is less than its average temperature in 2000. The only city on the chart for which this is true is Miami. The correct answer is (A).

23. **C** The question asks for the approximate percent increase in New York's temperature from 2000 to 2010, so an estimate will be enough. The top of the 2000 bar is between the 50 and 55 line,

closer to 55, so call the average temperature 53. The top of the 2010 bar is between the 55 and 60 line, closer to 55, so call the average temperature 57. To calculate percent change, use the formula $\frac{\text{difference}}{\text{original}} \times 100$. The difference is $57 - 53 = 4$. Since the question asks for a percent *increase*, the original is the smaller value, which is 53. Therefore, the percent increase is about $\frac{4}{53} \times 100 \approx 7.55\%$.

The closest choice is 6%. Therefore, the correct answer is (C).

24. **A** The question asks for a true statement about the data in the tables, and the answer choices refer to standard deviation. All that is needed to compute standard deviation is the individual scores. Since this is provided by the table, eliminate (D). The formula to calculate standard deviation is very long and complicated. However, it is not necessary to use the formula here. Just understand that the standard deviation is a measure of how far apart the values are spread out. A strong majority of students received a 4 on the Physics quiz. Since most of the students got the same score, the scores are not very spread out. Since the distribution of scores on the English quiz is more even, these scores are more spread out. Therefore, the standard deviation is higher for the English quiz. The correct answer is (A).

25. **D** The question asks for an inequality that *must be true*, so try some real numbers. Make sure to pick a value for b such that $b < -b$. Let $b = -3$. If $b = -3$, then $-3 < a < 3$. Let $a = 2$. Go through each statement. Statement (I) says $a < 0$. Since $a = 2 > 0$, cross out (I) and eliminate the choices that include (I): (A) and (C). Since both remaining choices include (III), (III) must be true, so only worry about (II). Since $b = -3$, (II) is true, so keep (II) at least for now. Try to come up with a value of b that will satisfy the inequality but make (II) false. Try a positive number. If $b = 4$, then $4 < a < -4$. Since 4 is not less than -4, do not use $b = 4$. In fact, any positive value for b will lead to the same problem. Try $b = 0$. If $b = 0$, then $0 < a < 0$. Again, 0 is not less than 0, so do not use $b = 0$. Since positive numbers and 0 do not satisfy the inequality, only negative numbers do. Therefore, (II) must be true. Eliminate the remaining answer that does not include (II), which is (B). The correct answer is (D).

26. **A** The question asks how the number 31 relates to the scatterplot. The number 31 is the y-intercept of the line, or the point at which $x = 0$. The x-axis refers to the number of hours spent on the Internet, and the y-axis refers to the score on the quiz. Therefore, a student who spends no time on the Internet would be expected to score around a 31. Go through the answer choices. Choice (A) says that even students who spend very little time on the Internet are unlikely to score above a 31. This matches the prediction. Also, only one of the data points is above 31. Keep (A). Choice (B) says that even students who spend very little time on the Internet will never score above 31. This is more extreme than the prediction. Also, there is a data point above 31. Eliminate (B). Choice (C) says the lowest score was about 31% of the highest score. This doesn't match the prediction. Also, the highest score is about 34 and the lowest score is about 6, so the lowest score is $\frac{6}{34} \times 100 \approx 18\%$ of the highest score. Eliminate (C). Choice (D) says the highest score on the test was 31. Similar to (B), this is more extreme than the prediction. Also, there is a data point above 31. Eliminate (D). The correct answer is (A).

27. **C** The question asks for the polynomial that is divisible by $3x + 4$. Rather than do complicated polynomial division or factoring, pick a value for x, such as $x = 2$. If $x = 2$, then $r(x) = r(2) = 3(2)^3 + 24(2)^2 + 21(2) = 162$, $s(x) = s(2) = 2^2 + 8(2) + 7 = 27$, and $3x + 4 = 3(2) + 4 = 10$. The question asks which choice is divisible by $3x + 4$, plug in $x = 2$ to each choice and eliminate any choice that isn't divisible by 10. Choice (A) is $r(2) + s(2) = 162 + 27 = 189$. This is not divisible by 10, so eliminate (A). Choice

(B) is $r(2) + 2s(2) = 162 + 2(27) = 216$. This is not divisible by 10, so eliminate (B). Choice (C) is $r(2) + 4s(2) = 162 + 4(27) = 270$. This is divisible by 10, so keep (C). Choice (D) is $2r(2) + 4s(2) = 2(162) + 4(27) = 432$. This is not divisible by 10, so eliminate (D). The correct answer is (C).

28. **A** The question asks for the value of c that will cause $g(x) = c$ to have one real solution. Since c is on the other side of the equals sign, it is the y-value. Therefore, if $g(x) = c$ has one real solution, it will intersect the line $y = c$ exactly once. Let each answer choice equal c and draw the line $y = c$. Draw $y = 3$, $y = 1$, $y = 0$, and $y = -1$. Each line should be a horizontal line crossing the y-axis at 3, 1, 0, and -1, respectively. The lines $y = 1$, $y = 0$, and $y = -1$ cross the graph of g at three points each. Therefore, if c is any of these values, $g(x) = c$ has three real solutions. The line $y = 3$ crosses g exactly once, so $g(x) = 3$ has exactly one real solution. Therefore, the correct answer is (A).

29. **B** The question asks for the form of a quadratic in which the minimum value appears. A parabola reaches its minimum (or maximum) value at its vertex, so get the equation into vertex form, which is $y = a(x - h)^2 + k$, where (h, k) is the vertex. Choice (C) is not in this form, so eliminate it. To get g into vertex form, expand using FOIL (First, Outer, Inner, Last) to get $(x - 10)(x + 4) = x^2 + 4x - 10x - 40 = x^2 - 6x - 40$. Eliminate (D), which is not equivalent to this. Get the quadratic into vertex form by completing the square. The coefficient on the x term is -6. Cut this value in half to get -3, and square the result to get 9. Add 9 to both sides (without combining like terms) to get $y + 9 = x^2 - 6x + 9 - 40$. Factor $(x^2 - 6x + 9)$ to get $y + 9 = (x - 3)^2 - 40$. Subtract 9 from both sides to get $y = (x - 3)^2 - 49$. Thus, the vertex is $(3, -49)$ and the minimum value is -49. The correct answer is (B).

30. **C** The question asks for the average of three numbers that are in terms of x, so pick a value for x. Let $x = 2$. The question states that a is the average of $4x$ and 7. The sum of $4x$ and 7 is $4(2) + 7 = 15$, so the average is $\frac{15}{2} = 7.5$. The question also states that b is the average of $5x$ and 6. The sum of $5x$ and 6 is $5(2) + 6 = 16$, so the average is $\frac{16}{2} = 8$. Finally, the question states that c is the average of $3x$ and 11. The sum of $3x$ and 11 is $3(2) + 11 = 17$, so the average is $\frac{17}{2} = 8.5$. The question asks for the average of a, b, and c. The sum of a, b, and c is $7.5 + 8 + 8.5 = 24$, so the average is $\frac{24}{3} = 8$. Circle 8; this is the target number. Go through the answer choices and eliminate any choice that is not equal to 8. Choice (A) is $x + 4 = 2 + 4 = 6$, so eliminate (A). Choice (B) is $x + 8 = 2 + 8 = 10$, so eliminate (B). Choice (C) is $2x + 4 = 2(2) + 4 = 8$, so keep (C). Choice (D) is $4x + 8 = 4(2) + 8 = 16$, so eliminate (D). The correct answer is (C).

31. **1.2** The question asks how much of a decrease in target heart rate will occur if the person's age increases by 2 years. Try two values of y that are 2 years apart. Start with $y = 20$. If $y = 20$, then $R = \frac{3(220 - 20)}{5} = 120$. Now try $y = 22$. If $y = 22$, then $R = \frac{3(220 - 22)}{5} = 118.8$. To determine the decrease, subtract the two values of R to get $120 - 118.8 = 1.2$. This is the correct answer.

32. **620** The question asks how many miles into the journey the driver will be at 8:00 P.M. From 1 P.M. to 8 P.M., the driver travels for 7 hours. To determine the distance traveled, use *distance* = *rate* × *time* to get $d = rt$ = (60 miles per hour)(7 hours) = 420 miles. This is not the answer. Note that at 1:00 P.M. the driver is already 200 miles into his journey. Therefore, the driver has traveled a total of 200 miles + 420 miles = 620 miles. The correct answer is 620.

33. $\frac{25}{4}$, $\frac{50}{8}$, or **6.25**

The question asks for the ratio of the displacement of two objects accelerating for different amounts of time. Since the variables are given in relation to one another, pick values for them to see what happens. Let the first object travel at an acceleration of $a = 4$ for a time of $t = 10$. The displacement is $d = \frac{1}{2}(4)(10)^2 = 200$. The second object also has an acceleration of $a = 4$ but for a time of $2.5t = 2.5(10) = 25$. This displacement is $d = \frac{1}{2}(4)(25)^2 = 1{,}250$. The question asks for the ratio of the velocity of the object that traveled for more time to the velocity of the object that traveled for less time. This is $\frac{1{,}250}{200}$. This requires more than four spaces on the answer sheet, so reduce the fraction to get $\frac{25}{4}$. Note that $\frac{50}{8}$ is also an acceptable answer, as is 6.25. Any of these three values can be entered into the grid as the correct answer.

34. **8.16** The question asks for the number of pounds that are equivalent to 488 shematies. The question states that 12 shematies is equivalent to 1 deben, so set up the proportion $\frac{12 \text{ shematies}}{1 \text{ deben}} = \frac{488 \text{ shematies}}{x \text{ debens}}$. Cross-multiply to get $12x = 488$. Divide by 12 to get $x = 40.\overline{66}$, so 488 shematies is equivalent to $40.\overline{66}$ debens. The question also says that a deben is approximately equal to 3.21 ounces, so set up the proportion $\frac{3.21 \text{ ounces}}{1 \text{ deben}} = \frac{y \text{ ounces}}{40.66 \text{ debens}}$. Cross-multiply to get $y = 130.54$, so 488 shematies is equivalent to 130.54 ounces. Finally, the question states that 16 ounces is equivalent to one pound, so set up the proportion $\frac{16 \text{ ounces}}{1 \text{ pound}} = \frac{130.54 \text{ ounces}}{z \text{ pounds}}$. Cross-multiply to get $16z = 130.54$. Divide both sides by 16 to get $z = 8.15875$. The question asks for the answer to the nearest hundredth, which is 8.16. This is the correct answer.

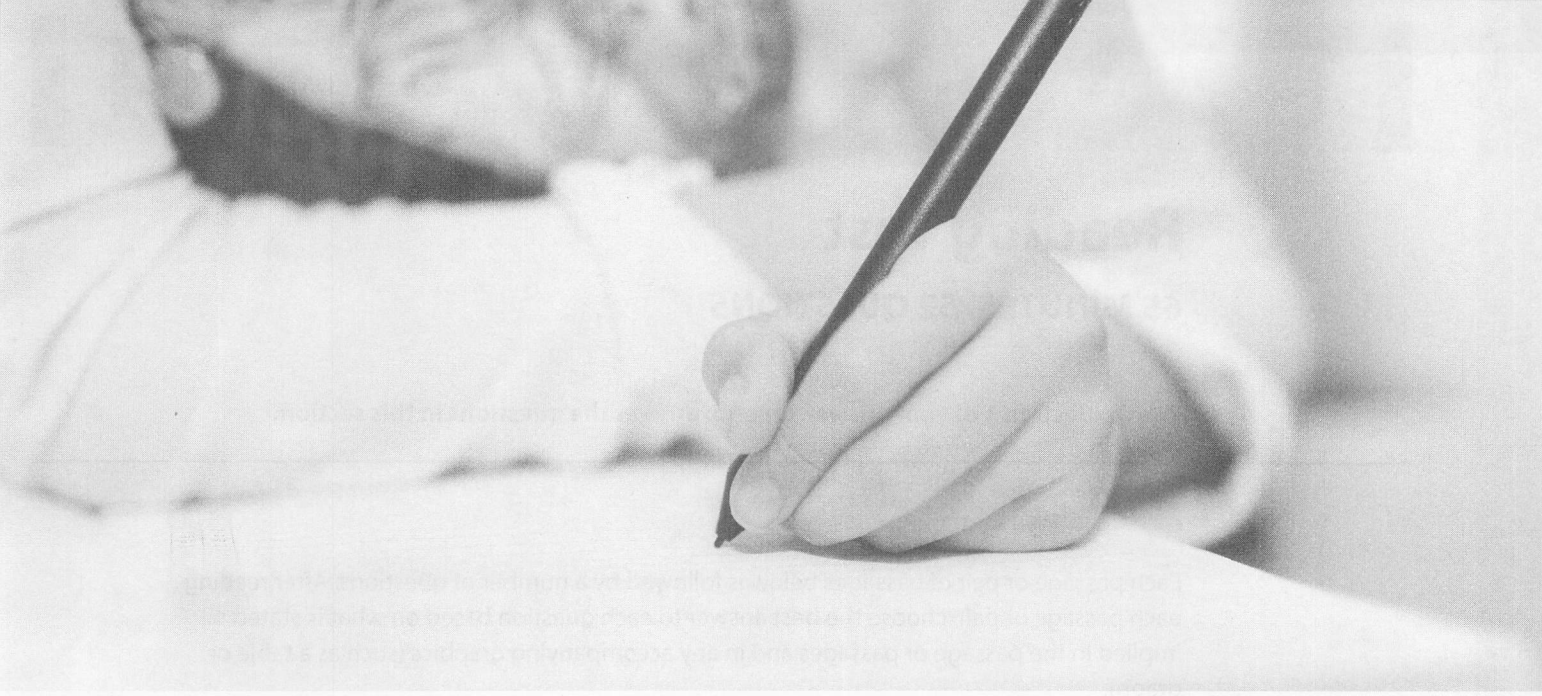
35. **43, 44,** or **45**

The question asks about arc, the degree measure of a central angle in a circle, based on the arc length. The parts of a circle are proportional such that $\frac{\text{arc}}{\text{circumference}} = \frac{\text{angle}}{360}$. The radius is 20, so use the circumference formula to get that the circumference is $C = 2\pi r = 2\pi(20) = 40\pi$. The arc is between 15 and 16, so start with an arc of 15 to get $\frac{15}{40\pi} = \frac{y}{360}$. Cross-multiply to get $5{,}400 = 40\pi y$. Divide both sides by 40π to get $y = \frac{5{,}400}{40\pi} = \frac{135}{\pi} = 42.9718$. Now try an arc of 16 to get $\frac{16}{40\pi} = \frac{y}{360}$. Cross-multiply to get $5{,}760 = 40\pi y$. Divide both sides by 40π to get $y = \frac{5{,}760}{40\pi} = \frac{144}{\pi} \approx 45.8366$. The angle is, therefore, in between these two values of y. The question specifies that the answer must be an integer. Therefore, the correct answers are 43, 44, or 45.

36. **90** The question asks how many blue marbles must be added so that $\frac{2}{5}$ of the marbles are blue. At the beginning, there are 230 blue marbles and 370 red marbles, so there are a total of 230 + 370 = 600 marbles. Then 110 red marbles are added, so there is now a total of 370 + 110 = 480 red marbles and 600 + 110 = 710 total marbles. If b blue marbles are added, there will be 230 + b blue marbles and 710 + b total marbles. Set up the equation $\frac{230 + b}{710 + b} = \frac{2}{5}$. Cross-multiply to get $5(230 + b) = 2(710 + b)$. Distribute to get $1{,}150 + 5b = 1{,}420 + 2b$. Subtract $2b$ from both sides to get $1{,}150 + 3b = 1{,}420$. Subtract 1,150 from both sides to get $3b = 270$. Divide both sides by 3 to get $b = 90$. This is the correct answer.

37. **1.07** The question asks for the value of r in the bank's interest formula. Interest is a type of exponential growth. The formula for this is $\textit{final amount} = \textit{original amount}(1 + \textit{rate})^{\textit{number of changes}}$. The original amount is \$5,400 and the rate of interest is 7%. In the formula, rate is in decimal form rather than percent form, so the rate is 0.07. The bank pays annual interest, so the number of changes is the number of years, which is y. The final amount is the amount in the bank after y years, which is A. Plug these into the exponential growth formula to get $A = 5{,}400(1 + 0.07)^y$ or $A = 5{,}400(1.07)^y$. This is now in the same form as the equation provided by the question, $A = 5{,}400(r)^y$. The value in parentheses in the same position as r in the provided equation is 1.07. This is the correct answer.

38. **7,078** The question asks for the value of the CD account after four years. As discussed in the explanation for Q37, the value of r is 1.07, so the formula becomes $A = 5{,}400(1.07)^y$. The number of years is 4, so the formula becomes $A = 5{,}400(1.07)^4$. Enter this into a calculator to get about \$7,078.29. The question asks for the value to the nearest dollar (disregarding the dollar sign), which is 7,078. Without the formula, it is still possible to get the answer. Just add 7% of 5,400 to get the value after one year, 7% of that new value to get the value after two years, and do that two more times to get the value after four years. Either way, the correct answer is 7,078.



Chapter 11
Practice Test 5

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 excerpted from Robert Louis Stevenson, *Treasure Island,* originally published in 1883. The narrator and his parents own an inn on the English coast.

The stranger kept hanging about just inside the inn door, peering round the corner like a cat waiting for a mouse. Once I stepped out myself into the road, but he immediately called me back, and as I did not obey quick enough for his fancy, a most horrible change came over his tallowy face, and he ordered me in with an oath that made me jump. As soon as I was back again he returned to his former manner, half fawning, half sneering, patted me on the shoulder, told me I was a good boy and he had taken quite a fancy to me. "I have a son of my own," said he, "as like you as two blocks, and he's all the pride of my 'art. But the great thing for boys is discipline, sonny—discipline. Now, if you had sailed along of Bill, you wouldn't have stood there to be spoke to twice—not you. That was never Bill's way, nor the way of sich as sailed with him. And here, sure enough, is my mate Bill, with a spy-glass under his arm, bless his old 'art, to be sure. You and me'll just go back into the parlour, sonny, and get behind the door, and we'll give Bill a little surprise—bless his 'art, I say again."

So saying, the stranger backed along with me into the parlour and put me behind him in the corner so that we were both hidden by the open door. I was very uneasy and alarmed, as you may fancy, and it rather added to my fears to observe that the stranger was certainly frightened himself. He cleared the hilt of his cutlass and loosened the blade in the sheath; and all the time we were waiting there he kept swallowing as if he felt what we used to call a lump in the throat.

At last in strode the captain, slammed the door behind him, without looking to the right or left, and marched straight across the room to where his breakfast awaited him.

"Bill," said the stranger in a voice that I thought he had tried to make bold and big.

The captain spun round on his heel and fronted us; all the brown had gone out of his face, and even his nose was blue; he had the look of a man who sees a ghost, or the evil one, or something worse, if anything can be; and upon my word, I felt sorry to see him all in a moment turn so old and sick.

"Come, Bill, you know me; you know an old shipmate, Bill, surely," said the stranger.

The captain made a sort of gasp.

"Black Dog!" said he.

"And who else?" returned the other, getting more at his ease. "Black Dog as ever was, come for to see his old shipmate Billy, at the Admiral Benbow Inn. Ah, Bill, Bill, we have seen a sight of times, us two, since I lost them two talons," holding up his mutilated hand.

"Now, look here," said the captain; "you've run me down; here I am; well, then, speak up; what is it?"

"That's you, Bill," returned Black Dog, "you're in the right of it, Billy. I'll have a glass of rum from this dear child here, as I've took such a liking to; and we'll sit down, if you please, and talk square, like old shipmates."

CONTINUE

When I returned with the rum, they were already seated on either side of the captain's breakfast-table—Black Dog next to the door and sitting sideways so as to have one eye on his old shipmate and one, as I thought, on his retreat.

He bade me go and leave the door wide open. "None of your keyholes for me, sonny," he said; and I left them together and retired into the bar.

For a long time, though I certainly did my best to listen, I could hear nothing but a low gattling; but at last the voices began to grow higher, and I could pick up a word or two, mostly oaths, from the captain.

"No, no, no, no; and an end of it!" he cried once. And again, "If it comes to swinging, swing all, say I."

1

Which choice is the best synopsis of what happens in the passage?

A) Two characters make a plan to surprise a third character.

B) One character shows another character how to properly behave in a parlour.

C) One character unpleasantly surprises another character with an unexpected reunion.

D) Two characters reminisce about their time together on a ship.

2

Which choice best describes the developmental pattern of the passage?

A) A detailed analysis of an enthusiastic encounter

B) An inaccurate dictation of a notable conference

C) An apprehensive account of a contentious meeting

D) A dismissive description of an important homecoming

3

As it is used in line 5 and line 10, "fancy" most nearly means

A) elaboration.

B) impatience.

C) imagination.

D) preference.

4

Which emotion does the narrator most sense from the stranger regarding his imminent meeting with the captain?

A) The stranger is fearful about the captain's reaction to seeing him.

B) The stranger is overjoyed to reunite with the captain.

C) The stranger is worried the captain won't remember him.

D) The stranger is concerned the captain will be more interested in his breakfast than in conversation.

5

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

A) Lines 24–27 ("I was . . . himself")

B) Lines 31–34 ("At last . . . him")

C) Lines 43–44 ("Come . . . stranger")

D) Line 71 ("No, no, . . . once")

6

In the passage, the stranger addresses the narrator with

A) respect but not friendliness.

B) violence but not anger.

C) disgust but not hatred.

D) affection but not trust.

CONTINUE

7

The main purpose of the first paragraph is to

A) introduce a character.

B) criticize a belief.

C) describe a relationship.

D) investigate a discrepancy.

8

As it is used in line 51, "talons" most nearly means

A) weapons.

B) claws.

C) fingers.

D) hooks.

9

Why does the narrator describe the captain's face as something from which "all the brown had gone out of" (line 38)?

A) The captain has grown pale after being on land so long.

B) The captain has washed his face before the meal.

C) The captain has become ill during his walk.

D) The captain has gone pale with fright.

10

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

A) Lines 22–24 ("So saying . . . door")

B) Lines 39–42 ("he had . . . sick")

C) Lines 52–53 ("Now, look . . . it")

D) Lines 59–63 ("When . . . retreat")

CONTINUE

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

This passage is adapted from Russell W. Belk, "It's the Thought that Counts." ©1976 by University of Illinois at Urbana-Champaign.

The phenomenon of selecting an object or service "X" to present as a gift to person "Y" on occasion "Z" is a unique and important act of consumer behavior. Not only must the gift giver attempt to infer the recipient's tastes, needs, desires, and reactions, the gift selection may also be affected by the information which it would appear to convey about the giver and the giver-recipient relationship. The ancient practice of gift-giving is still pervasive and significant in modern cultures. For instance, Lowes, Turner, and Willis (1971) cite a series of British Gallup Polls from 1963–1967, in which it was found that over 90 percent of the adult population did some Christmas gift-giving each year. Another limited sample of middle and upper income families in Montreal, Caron and Ward (1975) found that third- and fifth-grade children received an average of between five and six gifts for Christmas. Both because of its prevalence and because of its strong interpersonal meanings, gift-giving offers a potentially rich area for consumer behavioral explanation.

Gift-giving has been treated from a variety of related theoretical perspectives, focusing primarily on the functions and effects of giving. The preeminent theoretical analysis of the gift-giving process is an essay by French anthropologist-sociologist Marcell Mauss (1923). Based on his examination of gift-giving among numerous primitive, remote, or ancient societies, Mauss concluded that gift-giving is a self-perpetuating system of reciprocity. More specifically, Mauss outlined three types of obligations, which perpetuate gift-giving:

1. The obligation to give,
2. The obligation to receive,
3. The obligation to repay.

The obligation to give may be based on moral or religious imperatives, the need to recognize and maintain a status hierarchy, the need to establish or maintain peaceful relations, or simply the expectation of reciprocal giving. These motives, which do not admit purely selfless giving, become institutionalized in a society so that under appropriate conditions an individual is socially obligated to give. Receiving is seen as similarly obligatory, and avoiding or refusing gifts is construed as an unfriendly or even hostile act. Mauss noted however that there is a certain tension created in receiving a gift since acceptance is an implicit recognition of dependence on the giver. This tension may then be reduced by fulfilling the third obligation, the obligation to repay. Failure to repay or failure to repay adequately results in a loss of status and self-esteem. Adequate or overly adequate repayment, on the other hand, creates an obligation to repay on the part of the original giver, and the cycle is reinitiated.

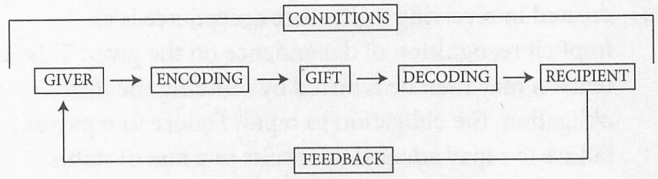
Schwartz (1967) noted that beyond the functions served by the general process of gift exchange, the characteristics of the gift itself also act as a powerful statement of the giver's perception of the recipient. He also suggested that acceptance of a particular gift constitutes an acknowledgment and acceptance of the identity that the gift is seen to imply. Among children this may lead to lasting changes in self-perceptions, but presumably gifts have less influence on the self-concept of an adult.

Nevertheless, the importance of this symbolic function of gift selection appears clear enough in a gift shop's recent advertisement, which asks, "Do you want your gifts to tell someone how creative you are, how thoughtful you are, or just how big your Christmas bonus was? Do you buy with a specific price or a specific personality in mind?" While the answers to such basic questions about gift selection may be personally evident, the underlying behavioral questions have not been addressed by empirical research.

There can be little doubt that gift-giving is a pervasive experience in human life and consumer behavior. Despite the additional variables which gift-giving introduces to conceptions of consumer behavior (e.g., characteristics of the recipient, gifter-receiver similarity, nature of the occasion), the present findings suggest that preference for cognitive balance is a concept which can go far toward explaining gift selection and evaluation.

CONTINUE

GIFT-GIVING AS COMMUNICATION



11

The author most likely uses the examples in lines 10–17 of the passage ("For instance . . . Christmas") to highlight the

A) recent increase in consumerism around Christmas time.

B) discrepancies in gift-giving between ancient and modern times.

C) apprehension between gift-givers and receivers.

D) pervasiveness of gift-giving on special occasions.

12

In line 20, the word "rich" most nearly means

A) opulent.

B) embellished.

C) fertile.

D) saccharine.

13

The passage indicates that the gift-giving described in lines 28–29 may be:

A) oppressive to gift recipients.

B) repeated between the same two people.

C) one-sided in most cases.

D) the result of deception.

14

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

A) Lines 38–41 ("These . . . give")

B) Lines 50–53 ("Adequate . . . reinitiated")

C) Lines 58–60 ("He also . . . imply")

D) Lines 70–74 ("While . . . research")

15

The author indicates that Marcell Mauss believes people's reasons for giving gifts may

A) be based somewhat on their own needs.

B) shift over the course of their lifetimes.

C) differ from culture to culture.

D) influence the timing of gift-giving.

16

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

A) Lines 21–23 ("Gift-giving . . . giving")

B) Lines 23–26 ("The preeminent . . . 1923")

C) Lines 34–38 ("The obligation . . . giving")

D) Lines 41–43 ("Receiving . . . act")

17

Schwartz, mentioned in paragraph 4 (lines 54–63), would likely describe the process of gift-exchanging as

A) stressful.

B) unnerving.

C) intentional.

D) symbolic.

CONTINUE

18

As it is used in line 65, "function" most nearly means

A) purpose.

B) tradition.

C) occasion.

D) occupation.

19

The author refers to a gift shop's recent advertisement (lines 65–66) in order to

A) question a former claim.

B) offer a motive.

C) introduce a counter explanation.

D) support an argument.

20

The graph and the passage offer evidence that the communication process of gift-giving predicts that a gift will demonstrate

A) the receiver's self-concept.

B) the amount the gift-giver spent.

C) encoded meaning.

D) the thoughtfulness of the gift-giver.

21

The author would likely explain the encoding phase represented in the figure in part as the gift-giver's attempt to convey information about

A) the occasion for gift-giving.

B) the giver's personal preferences.

C) the location where the gift was purchased.

D) the relationship between giver and receiver.

CONTINUE

Questions 22–31 are based on the following passage and supplementary material.

This passage is adapted from Nils Ekholm, "On the Variations of the Climate of the Geological and Historical Past and Their Causes." ©1901 by *Quarterly Journal of the Royal Meteorological Society.* Ekholm's studies are based on new mathematical calculations that show discrepancies among earlier scientists' findings in the study of historical changes in climate.

The atmosphere plays a very important part of a double character as to the temperature at the earth's surface. Firstly, the atmosphere may act like the glass of a green-house, letting through the light rays of the sun relatively easily, and absorbing a great part of the dark rays emitted from the ground, and it thereby may raise the mean temperature of the earth's surface. Secondly, the atmosphere acts as a heat store placed between the relatively warm ground and the cold space, and thereby lessens in a high degree the annual, diurnal, and local variations of the temperature.

There are two qualities of the atmosphere that produce these effects. The one is that the temperature of the atmosphere generally decreases with the height above the ground or the sea-level, owing partly to the dynamical heating of descending air currents and the dynamical cooling of ascending ones, as is explained in the mechanical theory of heat. The other is that the atmosphere, absorbing but little of the insolation and most of the radiation from the ground, receives a considerable part of its heat store from the ground by means of radiation, contact, convection, and conduction, whereas the earth's surface is heated principally by direct radiation from the sun through the transparent air.

It follows from this that the radiation from the earth into space does not go on directly from the ground, but on average from a layer of the atmosphere having a considerable height above sea-level. The height of that layer depends on the thermal quality of the atmosphere, and will vary with that quality. The greater is the absorbing power of the air for heat rays emitted from the ground, the higher will that layer be. But the higher the layer, the lower is its temperature relatively to that of the ground; and as the radiation from the layer into space is the less the lower its temperature is, it follows that the ground will be hotter the higher the radiating layer is.

Now if we are able to calculate or estimate how much the mean temperature that layer is lower than the mean temperature of the ground, we may apply Table I for calculating the mean temperature of the ground, as soon as we know by direct measurements the quantity of solar heat absorbed by the ground. Owing to the clouds and dust floating in the atmosphere, this heat is probably only about a third of that derived by using Langley's solar constant; and is thus about 360 calories per square centimeter during twenty-four hours. This gives, by means of Table I, a temperature of –31°C to the radiating layer. But, according to Arrhenius's estimate, this is at a height of about 7600 meters; and assuming a corresponding decrease of 0.6°C per 100 meters, we find its temperature to be 46°C lower than that of the ground, and thus the mean temperature of the ground equal to 15°C, as it is according to observations.

The table shows the loss of heat by radiation into space from a perfectly black body of the temperature $t°$ centigrade. In gram-calories per square centimeter per 24 hours at 7600 meters.

t	Loss of Heat	t	Loss of Heat	t	Loss of Heat
100	2023	20	770	–60	215
80	1624	0	581	–80	145
60	1285	–20	428	–100	94
40	1003	–40	308	–120	57

22

A student claims that over half of solar radiation influences the ground temperature on the earth's surface. Which of the following statements in the passage contradicts the student's claim?

A) Lines 3–7 ("Firstly . . . surface")

B) Lines 13–18 ("The one . . . heat")

C) Lines 45–49 ("Owing . . . hours")

D) Lines 49–50 ("This . . . layer")

CONTINUE

1

23

In the first paragraph (lines 1–11), what does the author claim is the atmosphere's importance to the temperature of the earth's surface?

A) The trapping of all hot air and energy from the sun

B) Controlling the heat energy that is admitted and released

C) The enclosure of all the earth's heat-producing mechanisms

D) The free passage of heat energy to and from the surface

24

The author uses the word "green-house" in line 4 to indicate that

A) the heat on the ground and in the atmosphere of the earth is provided exclusively by solar radiation.

B) most of the heat in the atmosphere comes from radiation from the ground.

C) the agricultural and botanical sectors of the economy are those most affected by climate fluctuations.

D) solar heat enters the atmosphere relatively unobstructed but the same does not apply as it leaves.

25

Based on the passage, the author's statement "the earth's surface is heated principally by direct radiation from the sun through the transparent air" (lines 23–25) implies that

A) when the sun is obscured by clouds, the ground is heated principally by other sources of energy.

B) heat generated independently by the ground and by the sun is held in the atmosphere and released as cool air.

C) the heat from the sun that warms the ground must be partially absorbed by the earth's atmosphere.

D) the solar heat reflected back from the earth does not account for all the heat in the atmosphere.

26

The author's use of the words "if," "may," and "as soon as" in lines 39–43 functions mainly to

A) provide definitive evidence that the author's mathematical calculations predict the span of global warming with accuracy.

B) demonstrate that many of the author's conclusions rely on both observable and non-observable factors.

C) support the hypothesis that ground temperatures are warmer than higher temperatures.

D) warn against the indiscretion of earlier scientists who made incorrect claims with insufficient evidence.

27

The author's main purpose in noting the observations of ground temperature is to

A) indicate that the mathematical calculations given in this paragraph correspond to data recorded by others.

B) show the limitations of mathematical formulas in providing precise measurements of observable phenomena.

C) provide an example of one place in which the global temperature has risen because of human activity.

D) underline the importance of mathematical calculations in determining the influence of solar radiation.

28

Based on the table and passage, which choice gives the correct temperature on the ground when the loss of heat is approximately 300 gram-calories per square centimeter for 24 hours?

A) 40°C

B) 6°C

C) −6°C

D) −40°C

CONTINUE

29

Does the data in the table support the author's claim regarding the atmosphere as a heat store?

A) Yes, because at each given temperature, as the temperature decreases, the heat loss decreases as well but by larger and larger intervals.

B) Yes, because at each given temperature, as the temperature decreases, the heat loss decreases as well but by smaller and smaller intervals.

C) No, because at each given temperature, as the temperature decreases, the heat loss fluctuates according to an irregular pattern and series of intervals.

D) No, because at each given temperature, as the temperature decreases, the heat loss increases by larger and larger intervals.

30

According to the table, which of the following pairs of heat-loss values at different temperatures provide evidence in support of the answer to the previous question?

A) 2023 to 1624 and 2023 to 57

B) 1003 to 581 and 581 to 94

C) 1003 to 770 and 770 to 581

D) 308 to 94 and 581 to 57

31

Based on the passage and the table, does the temperature of the atmosphere of the earth stay the same or does it vary with distance from the earth, and which statement made by the authors is most consistent with this data?

A) The same; "Secondly . . . temperature" (lines 7–11)

B) The same; "It follows . . . sea-level" (lines 26–29)

C) It varies; "Now if . . . ground" (lines 39–44)

D) It varies; "But, according . . . observations" (lines 50–56)

CONTINUE

Questions 32–41 are based on the following passage.

This passage is adapted from Frederick Douglass's speech "On Women's Suffrage" delivered in 1888 to a gathering of women's suffrage activists.

Mrs. President, Ladies and Gentlemen:— I come to this platform with unusual diffidence. Although I have long been identified with the Woman's Suffrage movement, and have often spoken in its favor, I am somewhat at a loss to know what to say on this really great and uncommon occasion, where so much has been said.

When I look around on this assembly, and see the many able and eloquent women, full of the subject, ready to speak, and who only need the opportunity to impress this audience with their views and thrill them with "thoughts that breathe and words that burn," I do not feel like taking up more than a very small space of your time and attention, and shall not. I would not, even now, presume to speak, but for the circumstance of my early connection with the cause, and of having been called upon to do so by one whose voice in this Council we all gladly obey. Men have very little business here as speakers, anyhow; and if they come here at all they should take back benches and wrap themselves in silence. For this is an International Council, not of men, but of women, and woman should have all the say in it. This is her day in court. I do not mean to exalt the intellect of woman above man's; but I have heard many men speak on this subject, some of them the most eloquent to be found anywhere in the country; and I believe no man, however gifted with thought and speech, can voice the wrongs and present the demands of women with the skill and effect, with the power and authority of woman herself. The man struck is the man to cry out. Woman knows and feels her wrongs as man cannot know and feel them, and she also knows as well as he can know, what measures are needed to redress them. I grant all the claims at this point. She is her own best representative. We can neither speak for her, nor vote for her, nor act for her, nor be responsible for her; and the thing for men to do in the premises is just to get out of her way and give her the fullest opportunity to exercise all the powers inherent in her individual personality, and allow her to do it as she herself shall elect to exercise them. Her right to be and to do is as full, complete and perfect as the right of any man on earth. I say of her, as I say of the colored people, "Give her fair play, and hands off." There was a time when, perhaps, we men could help a little. It was when this woman suffrage cause was in its cradle, when it was not big enough to go alone, when it had to be taken in the arms of its mother from Seneca Falls, N.Y., to Rochester, N.Y., for baptism. I then went along with it and offered my services to help it, for then it needed help; but now it can afford to dispense with me and all of my sex. Then its friends were few—now its friends are many. Then it was wrapped in obscurity—now it is lifted in sight of the whole civilized world, and people of all lands and languages give it their hearty support. Truly the change is vast and wonderful.

There may be some well-meaning people in this audience who have never attended a woman suffrage convention, never heard a woman suffrage speech, never read a woman suffrage newspaper, and they may be surprised that those who speak here do not argue the question. It may be kind to tell them that our cause has passed beyond the period of arguing. The demand of the hour is not argument, but assertion, firm and inflexible assertion, assertion which has more than the force of an argument. If there is any argument to be made, it must be made by opponents, not by the friends of woman suffrage. Let those who want argument examine the ground upon which they base their claim to the right to vote. They will find that there is not one reason, not one consideration, which they can urge in support of man's claim to vote, which does not equally support the right of woman to vote.

32

The main purpose of the passage is to

A) qualify the credentials of a speaker.

B) provide support for the suffrage movement.

C) argue for the equal rights of women.

D) compare the sufferings of women to those of African Americans.

CONTINUE

33

The central claim of the passage is that

A) women should have the floor at this assembly.

B) men should act for women in this movement.

C) women and men have the same justification for voting.

D) the suffrage movement should be less obscure.

34

Douglass uses the word "cause" throughout the passage mainly to

A) clarify his early connection to the suffrage movement.

B) explain why the suffrage movement deserves support.

C) compare the suffrage movement to a baby in a cradle.

D) describe the suffrage movement.

35

According to the passage, Douglass is hesitant to speak at the gathering because

A) he had an early association with the suffrage movement.

B) he believes that women should be the featured speakers.

C) he does not consider himself an eloquent and forceful speaker.

D) it is improper to speak from the back benches.

36

Douglass indicates that men

A) should not be speakers in such a movement.

B) should not take too much time and attention.

C) should primarily listen at such a gathering.

D) should voice the wrongs of women publicly.

37

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

A) Lines 8–14 ("When I . . . not")

B) Lines 15–18 ("I would . . . obey")

C) Lines 18–21 ("Men have . . . silence")

D) Lines 27–31 ("and I . . . herself")

38

Douglass characterizes the "demands of women" in line 29 as related to injuries that

A) women can best describe and suggest solutions for.

B) men should speak about more eloquently.

C) the civilized world should support heartily.

D) men and women should both be responsible for.

39

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

A) Lines 25–27 ("but I . . . country")

B) Lines 32–34 ("Woman . . . them")

C) Lines 42–44 ("Her right . . . earth")

D) Lines 45–46 ("There . . . little")

CONTINUE

40

Which choice most closely captures the meaning of the figurative "cradle" referred to in line 47?

A) Nest

B) Rock

C) Hold

D) Beginnings

41

The surprise referred to in lines 58–74 mainly serves to emphasize how

A) some attendees may have expected different sorts of speeches.

B) male attendees may have expected more arguments than assertions.

C) audience members may not have expected speeches on women's suffrage.

D) speakers may have presented unexpected arguments for the right to vote.

CONTINUE

Questions 42–52 are based on the following passages.

Passage 1 is adapted from Michael B. McElroy and Xi Li, "Fracking's Future." ©2013 by *Harvard Monthly*. Passage 2 is adapted from Natural Resources Defense Council, "Unchecked Fracking Threatens Health, Water Supplies." ©2015.

Passage 1

Supplies of natural gas now economically recoverable from shale in the United States could accommodate the country's domestic demand for natural gas at current levels of consumption for more than a hundred years: an economic and strategic boon, and, at least in the near term, an important stepping-stone toward lower-carbon, greener energy.

The first step in extracting gas from shale involves drilling vertically to reach the shale layer, typically a kilometer or more below the surface. Drilling then continues horizontally, extending a kilometer or more from the vertical shaft, and the vertical and horizontal components of the well are lined with steel casing, cemented in place. The horizontal extension of the casing is then perforated, using explosives; thereafter, water, carrying sand and proprietary chemicals, is injected into the well at high pressure. The water encounters the shale through the perforations, generating a series of small fractures in the rock (hence the nickname, "fracking"); the sand in the water keeps the cracks open, while the chemicals enhance release of gas from the shale. The injected water flows back up to the surface when the pressure in the well is released following completion of the fracking procedure. Then the well starts to produce natural gas.

As many as 25 fracture stages (per horizontal leg) may be involved in preparing a single site for production, each requiring injection of more than 400,000 gallons of water—a possible total of more than 10 million gallons before the well is fully operational. A portion of the injected water flows back to the surface, heavily contaminated with the fracking chemicals and others it has absorbed from the shale. Depending on the local geology, this "return water" may also include radioactive elements.

Drillers developing a well must take exceptional care to minimize contact between the wellbore and the surrounding aquifer—often the source of nearby residents' fresh water. Serious problems have arisen in the past from failures to isolate the drilling liquids, including cases where well water used for drinking became so contaminated that human and animal health was threatened. It is essential that monitoring be in place to ensure the continuing integrity of the seal isolating the well from the aquifer even *after* the well has been fully exploited and abandoned.

Passage 2

The oil and gas industry is rapidly expanding production across the nation, as new technology makes it easier to extract oil or gas from previously inaccessible sites. Over the last decade, the industry has drilled hundreds of thousands of new wells all across the country. These wells are accompanied by massive new infrastructure to move, process, and deliver oil and gas, together bringing full-scale industrialization to often previously rural landscapes.

The sector's growth is spurred by the use of hydraulic fracturing, or fracking, in which often-dangerous chemicals are mixed with large quantities of water (or other base fluid) and sand and injected into wells at extremely high pressure. Unconventional development using advanced fracking methods poses threats to water, air, land, and the health of communities. Studies have shown dangerous levels of toxic air pollution near fracking sites; and oil and gas extraction have caused smog in rural areas at levels worse than downtown Los Angeles. Oil and gas production have been linked to increased risk of cancer and birth defects in neighboring areas; as well as to a risk of increased seismic activity. Constant massive truck traffic associated with large-scale development disrupts communities and creates significant hazards. The millions of gallons of water used in fracking operations not only strain water resources, but end up as vast amounts of contaminated wastewater. Fracking has been reported as a suspect in polluted drinking water around the country. And methane—a potent climate change pollutant—leaks rampantly throughout the extraction, processing, and distribution of oil and gas.

Weak safeguards and inadequate oversight have allowed oil and gas producers to run roughshod over communities across the country with their extraction and production activities for too long, resulting in

CONTINUE

contaminated water supplies, dangerous air pollution, destroyed streams, and devastated landscapes. Our state and federal leaders have failed to hold them to account, leaving the American people unprotected. Many companies don't play by the few rules that do exist; and industry has used its political power at every turn to gain exemptions from environmental laws designed to protect our air and water.

42

The author of Passage 1 indicates that fracking could have which positive effect?

A) It could support small, local economies that do not have other sources of income.

B) It could alter the way scientists understand the shale layer of the Earth.

C) It could provide resources that meet the needs of contemporary consumers.

D) It could lower the price that large-scale industrial firms pay for natural gas.

43

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

A) Lines 1–5 ("Supplies . . . years")

B) Lines 17–22 ("The water . . . shale")

C) Lines 22–25 ("The injected . . . gas")

D) Lines 30–35 ("A portion . . . elements")

44

In lines 26–30, the author of Passage 1 mentions the number of gallons of water primarily to

A) warn of the inevitable dangers of industrial fracking in small communities.

B) show the variety of ways that natural gas can be extracted from shale.

C) expand upon the idea that fracking uses only a few basic elements.

D) establish the size and scope of a fracking operation.

45

What function does the discussion of the aquifer in lines 36–46 serve in Passage 1?

A) It outlines one significant risk involved in the process described in earlier paragraphs.

B) It addresses and disputes the concerns of those whose attitude toward fracking is cautious.

C) It extends a discussion of a significant term that begins in the previous paragraph.

D) It presents an unexpected new finding that undermines industry arguments for a certain practice.

46

As used in line 44, "integrity" most nearly means

A) morality.

B) impermeability.

C) moisture.

D) confidence.

47

The central claim of Passage 2 is that fracking mines useful resources but

A) the wells that have been built are not sufficiently productive to justify all the cost.

B) some experts believe that natural gas can be acquired just as easily from other sources.

C) it may lead some industry executives to believe that they can mine resources from any place they choose.

D) it is currently not sufficiently regulated in a way that is safe for local populations.

CONTINUE

48

As used in line 80, "oversight" most nearly means

A) error.

B) planning.

C) regulation.

D) omission.

49

Which statement best describes the relationship between the passages?

A) Passage 2 undermines the optimistic confidence of the author of Passage 1.

B) Passage 2 expands upon some of the concerns expressed less explicitly in Passage 1.

C) Passage 2 argues for certain regulations of which the author of Passage 1 does not approve.

D) Passage 2 describes the process discussed in Passage 1 but does so with more detail and statistics.

50

The author of Passage 2 would most likely respond to the discussion of drillers in lines 36–46, Passage 1, by claiming that these drillers

A) cite their successes in having grown the mining industry throughout the country.

B) often come from small towns themselves and are not likely to abuse the land.

C) have already caused irreparable harm to the American landscape.

D) can be difficult to contact when their work is conducted so far underground.

51

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

A) Lines 47–52 ("The oil . . . country")

B) Lines 56–60 ("The sector's . . . pressure")

C) Lines 66–72 ("Oil and . . . hazards")

D) Lines 80–85 ("Weak . . . landscapes")

52

Which point about the potential effects of fracking is implicit in Passage 2 and explicit in Passage 1?

A) The pollution caused by fracking can affect both the water and the air.

B) The process of fracking requires the use of many billions of gallons of water.

C) The process can contaminate drinking water and thus harm both animals and humans.

D) The economic costs of preparing wells can often cost more than the profits gained from mining.

STOP

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

No Test Material On This Page

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.

A Horse of a Different Doctor

Although medical science has made huge bounds in understanding many parts of the body, the brain remains a kind of mystery. A heart attack, for instance, is much easier to identify and prevent than a brain stroke. And mental illness aside, 1 the variety of neurological disorders can make specific brain diagnoses complicated and often unreliable. As a result, the therapeutic resources available to neurologists and those with neurological disorders must necessarily be as vast and diverse as the patient base itself. Disciplines like art therapy, aromatherapy, and horticultural therapy have begun to gain some traction in the popular imagination. Some fields, however, are still awaiting 2 the okay from the people, although their achievements and successes are just as significant. One such field is that of hippotherapy.

1

A) NO CHANGE
B) the variety of different kinds of neurological disorders
C) the differing variety of disorders in neurology
D) disorders that show a variety of differences

2

A) NO CHANGE
B) broader public acceptance
C) something elusive from the public
D) a public to give the thumbs up

CONTINUE

Hippotherapy positions itself at the intersection of physical, occupational, and speech therapy. In this discipline, the characteristic movements of a horse (*hippo-* in Greek) 3 is used to build a foundation for improvements in human neurological functions and sensory processing. Its main difference from therapeutic horseback riding is that hippotherapy uses the movement of the horse as a way to treat a specific ailment. 4 Thus, it is more concerned with learning a skill set and establishing a bond between rider and horse.

3

A) NO CHANGE

B) has been used

C) are used

D) used

4

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

> Therapeutic horseback riding teaches riding skills and is more concerned with emotional and behavioral disabilities.

Should the writer make this addition here?

A) Yes, because it makes the argument that hippotherapy is the more effective of the two disciplines.

B) Yes, because it further clarifies the difference between the two disciplines discussed in this paragraph.

C) No, because it undermines the point the author is trying to make about the validity of hippotherapy.

D) No, because a discussion of therapeutic horseback riding has no place in this particular paragraph.

CONTINUE

[1] Many fields use the basic tenets of hippotherapy, but they each provide a unique spin on the practice. [2] Physical therapists may incorporate hippotherapy to manage a variety of disabilities and, hopefully, cure diseases. [3] Occupational therapists use many of the same features of the horse's movement, but they 5 are similarly plagued by the lack of laboratory support. [4] The research on the effectiveness of hippotherapy is still in the early stages of development, but therapists in a variety of fields, even including speech and language pathology, regularly achieve success with this technique and 6 eagerly to recommended it to their patients. [5] As the name suggests, these therapists are concerned mainly with the movement of the horse as it relates to physical aspects such as balance, posture, and strengthening the core. 7

The American Hippotherapy Association can provide certification for those wishing to work in the discipline. Physical therapists, occupational therapists, and speech-language pathologists must have practiced for at least three years and had 100 hours of hippotherapy practice before they can sit for the Hippotherapy Clinical Specialty Certification Exam, and the certification lasts for five years. Because the discipline is relatively 8 new, certified, hippotherapists have stringent requirements for staying current on the research within the field.

5

Which choice provides a supporting example that reinforces the main point of the sentence?

A) NO CHANGE
B) use the therapy to develop the cognitive and fine motor skills.
C) work on different maladies and different parts of the body.
D) have a whole different set of requirements and backgrounds.

6

A) NO CHANGE
B) eager recommending of
C) eagerly recommending
D) eagerly recommend

7

To make this paragraph most logical, sentence 5 should be placed

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

8

A) NO CHANGE
B) new, certified
C) new, and certified
D) new; certified

CONTINUE

Just as medical science is constantly evolving, 9 so are its alternatives. Hippotherapy may seem a bit out of the ordinary, but if it provides effective relief or treatment for people in pain, the skeptics 10 between doctors and researchers will not hesitate to embrace it. 11 Becoming a hippotherapist is pretty hard, as evidenced by all those hours one has to spend keeping up with the literature.

9

A) NO CHANGE
B) so too are its alternatives.
C) its alternatives also are.
D) its alternatives are, too.

10

A) NO CHANGE
B) above
C) within
D) among

11

The writer wants a concluding sentence that restates the main argument of the passage. Which choice best accomplishes that goal?

A) NO CHANGE
B) Hippotherapy has positioned itself at the crossroads of many disciplines, and it may just be the practice to provide relief in ways the other therapies have not done yet.
C) Many people used bloodletting and radiation regularly before the medical establishment showed how unsafe these practices were.
D) It makes you wonder whether the medical profession is ready for such a crazy discovery.

CONTINUE

Questions 12–22 are based on the following passage and supplementary material.

The Call of the Wilderness

The way science textbooks teach about different ecosystems 12 elicit responses primarily from our visual and tactile senses. We have all seen pictures of the silent sands of the desert and can almost feel the heat radiating from the sands. We all know the ballet of fish and marine life coursing through the vast ocean. Some recent studies, however, have expanded our ideas about these ecosystems by incorporating another one of our senses: sound.

13 It was Marco Polo who crossed the desert on his way to China, he described the sound he heard as "a variety of musical instruments." Researchers now understand that the curious sound that Polo heard, that odd confluence of pipe organ and 14 cello, probably resulted from the wind blowing across the sand dunes. In a study conducted in the deserts of California, scientists found that the "singing" dunes had dry, tightly packed layers of sand, with dry sand on top of layers of damp sand. This variation creates an effect similar to that of a musical 15 instrument, a tonal quality coming from the trapping and release of certain frequencies.

12

A) NO CHANGE
B) elicits responses
C) illicit responses
D) illicits responses

13

A) NO CHANGE
B) Marco Polo crossed the desert
C) They called him Marco Polo, he who crossed the desert
D) As Marco Polo crossed the desert

14

A) NO CHANGE
B) cello;
C) cello—
D) cello: it has

15

A) NO CHANGE
B) instrument; a tonal quality coming
C) instrument, a tonal quality that is said to be coming
D) instrument, this quality comes

CONTINUE

16 From among the world's countless ecosystems and throughout that world, the ocean, too, has recently been given a kind of "voice." Although Jacques Cousteau referred to this body of water as *le monde du silence*—"the silent world"—recent research has shown the ocean to be anything but silent. University of Washington biologist Kate Stafford has, for the past five years, recorded sounds in the deep waters of the Bering Strait. 17 For Stafford, sound provides advantage that sight cannot: one can continue to record sound at night or underneath ice cover, and the challenges of deep-sea sound-recording are not nearly as problematic as those of deep-sea diving.

16

Which choice most smoothly and effectively introduces the writer's discussion of the sounds of the ocean in this paragraph?

A) NO CHANGE

B) Ecosystems are filled with sound, and one such sound in one such ecosystem is the "voice" of the ocean.

C) Another place that has recently been given a kind of "voice" is the ocean.

D) DELETE the underlined sentence.

17

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

> If you go far enough from the coast, the only sounds you will hear are those of distant ships passing in the night.

Should the writer make this addition here?

A) Yes, because it creates a poetic image that complements the main idea of the paragraph.

B) Yes, because it supports the main idea of the passage as a whole.

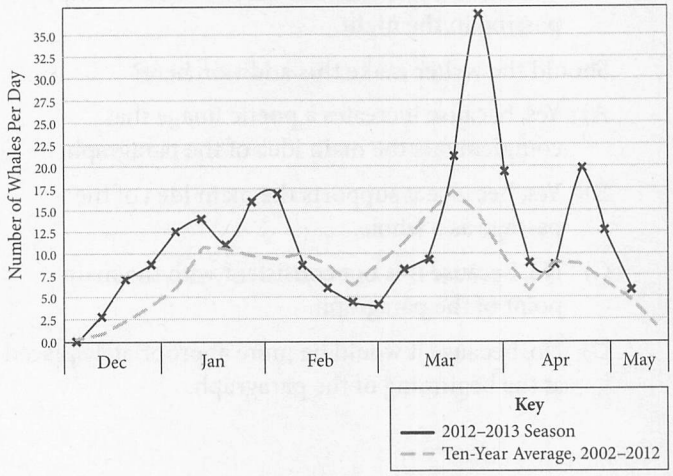
C) No, because it is not consistent with the main point of the paragraph.

D) No, because it would be more appropriately placed at the beginning of the paragraph.

CONTINUE

According to Stafford's research, one of the most interesting aspects of the sound of the ocean is 18 its unwillingness to 19 not act so weird. Stafford's team found inconsistencies among the sounds at any particular time of year. This may help to explain the 20 lack of any consistency in whale migrations during 2012–2013 as compared to previous seasons. Data from the 2012–2013 season shows that on many days the number of whales migrating was 21 more than twice the ten-year average. This gives some hint as to how marine animals are currently adapting to climate change, and how they may adapt in the future. It seems that those with the most flexibility will be those who are least affected.

2012–2013 Season, Compared to the Average of the Previous Ten Seasons



18

A) NO CHANGE
B) it's
C) their
D) they're

19

A) NO CHANGE
B) follow any discernible patterns.
C) chill out and be normal for a second.
D) play nice with others.

20

Which choice offers the most accurate interpretation of the data in the chart?

A) NO CHANGE
B) definable inverse relationship
C) absolute confluence
D) notable increases

21

Which choice offers an accurate interpretation of the data in the chart?

A) NO CHANGE
B) more than ten times the ten-year average.
C) less than half of the ten-year average.
D) more than twice the number of shorebirds migrating.

CONTINUE

The work that Stafford and others are doing adds another dimension to how we understand different ecosystems. 22 Sound may clarify the processes of these ecosystems in ways that were not available to researchers before.

22

The writer wants a conclusion that points toward the role that sound might play in future research into different ecosystems. Which choice results in the passage having the most appropriate concluding sentence?

A) NO CHANGE

B) This is not, of course, to say that no research has ever been done on sound before; that would be an overstatement.

C) Researchers may have missed this sound component, but you have to hand it to them for covering the other parts as thoroughly as they have.

D) The vividness of soundscapes is nowhere more evident than in the experiences of the blind, who can use sound in much the way that sighted people use sight.

CONTINUE

Questions 23–33 are based on the following passage.

Roosevelt's 100 Days

In the 1932 presidential election, up-and-comer Franklin D. Roosevelt 23 won— in a landslide over the incumbent Herbert Hoover, who had done little to avert the crisis that would become known as the Great Depression. 24 And Hoover took office in 1929, the unemployment rate was a mere 3.2%. By 1932, that rate had skyrocketed to 25%.

25 Roosevelt took office with a clear mandate for action. Even so, no one was quite ready for the legislative whirlwind that would follow. This period became known as Roosevelt's "100 Days." Roosevelt's first action came on March 5, 1933, when an executive order shut down all the nation's banks. At that time, he sent government workers to inspect each bank, 26 although determining which banks would be safe and sustainable to reopen. Four days later, the banks reopened and started business anew.

23

A) NO CHANGE
B) won;
C) won,
D) won

24

A) NO CHANGE
B) Because
C) When
D) DELETE the underlined portion and begin the sentence with a capital letter.

25

Which choice most effectively sets up the paragraph?

A) NO CHANGE
B) Politics could move a bit more quickly in those days.
C) That unemployment rate is remarkably low.
D) Hoover had given up all hope of ending the Depression.

26

A) NO CHANGE
B) for
C) thereby
D) whereupon

CONTINUE

Roosevelt's main goal was to lift the country from depression and to get the 27 economy operating again. In the 100 days, Roosevelt established programs to aid the poor, such as the $500 million Federal Emergency Relief Association. The Civilian Conservation Corps was established to give unemployed men six-month job assignments on environmental projects, such as national parks. In agricultural regions, Roosevelt sought to control supply as a way to level 28 with demand, and certain projects were geared toward electrifying until-then remote regions. The Tennessee Valley Authority (TVA) brought dams to the non-coastal southern states, 29 including Tennessee itself, of course, but also the northern parts of Alabama and Mississippi.

27

Which choice provides the most specific information on the areas that Roosevelt hoped to stimulate?

A) NO CHANGE
B) industrial and agricultural sectors
C) whole thing
D) money flowing and the economy

28

A) NO CHANGE
B) on
C) off
D) to

29

Which choice gives an additional supporting detail that emphasizes the importance of the TVA in Roosevelt's larger economic project?

A) NO CHANGE
B) taking account of the fact that farming is difficult without a reliable large body of water.
C) establishing not only more reliable sources of water and work but electricity for millions of Americans.
D) one of many impressive public-works projects completed throughout Roosevelt's tenure.

CONTINUE

Many of the programs, including the Tennessee Valley Authority, continue to exist to this day. Roosevelt's 100 Days were unique in that they not only jumpstarted the American economy at a time when a stimulus was most needed but also laid the groundwork for programs that could persist into the 30 future, past their own moment. Indeed, Roosevelt's "New Deal" remains new even though, at this point, 31 it's more than eighty years old.

Still, Roosevelt's 100 Days remain the subject of controversy. In Roosevelt's day, there was widespread criticism from those who thought government should play a smaller rather than a larger role in 32 people's day-to-day lives. For many others, Roosevelt's government interventions are a model for how governments should aid citizens in times of need. 33 Clearly, Roosevelt's unadulterated successes would seem odd in an era of political wrangling characterized by gridlock rather than swift action.

30

A) NO CHANGE
B) future.
C) future, which is to say after the present.
D) future, many years beyond when they were created.

31

A) NO CHANGE
B) its
C) they're
D) there

32

A) NO CHANGE
B) peoples'
C) peoples
D) peoples's

33

The writer wants to conclude the paragraph effectively without dismissing the debate described in this paragraph. Which choice best accomplishes this goal?

A) NO CHANGE
B) Unfortunately, even Roosevelt's obvious failures can
C) In either case, Roosevelt's achievements in the first 100 Days of his presidency
D) Both sides are obviously unfounded, but everyone can agree that Roosevelt's 100 Days

CONTINUE

Questions 34–44 are based on the following passage.

Setsuko Hara: In and Out of the Tokyo Spotlight

One of the 34 hammiest board-treaders in the history of Japanese cinema was also one of the most mysterious. Setsuko Hara died in September 2015 at the age of 95, and while she is remembered as perhaps the most formidable actress in Japan's long cinematic tradition, no one had seen her in anything since the 1960s. The actress went into seclusion after the death of her longtime collaborator, the director Yasujiro Ozu.

Hara's first acting role came when she was only 15. The Japanese film industry had divided loyalties at the time, 35 despite its obvious debt to American cinema amid the increasing international tensions with the United States and others that would lead to World War II. Hara's first film, a German-Japanese production called *The Daughter of the Samurai* (1937), emerged among these tensions, 36 using the conventions of the American melodrama to promote an early version of what would become Axis propaganda. After her success in this film, Hara became one of the faces of the Japanese propaganda effort during the Second World War.

34

A) NO CHANGE
B) most exquisite thespians
C) most emotive of histrionists
D) greatest actresses

35

A) NO CHANGE
B) as evidenced by
C) contrasting with
D) enabled by

36

The writer is considering deleting the underlined portion (ending the sentence with a period). Should the writer make this deletion?

A) Yes, because the information is provided in the previous sentence.
B) Yes, because the underlined portion undermines the paragraph's description of the Axis propaganda effort.
C) No, because the underlined portion gives a specific example of how the Axis powers conducted their propaganda campaign.
D) No, because the underlined portion provides information that clarifies an idea central to this paragraph.

CONTINUE

After Japan's defeat in the war, however, Hara's career changed significantly. Directors and audiences discovered her incredible talent acting in quieter dramas. The masterpieces in this mode were Ozu's *Late Spring* (1949) and *Tokyo Story* (1953), in which Hara plays a woman who is torn between the demands of various family members, who in turn **37** represented different generational expectations. Hara could reveal incredible emotion through subtle, almost imperceptible facial expressions and voice modulations. **38** Moreover, her compelling and unique beauty kept screen audiences eagerly engaged.

The subtle conflicts in *Late Spring* capture Hara's particular **39** style of acting in films. Even in the 1940s, Hollywood films were characterized by grand conflicts and even grander emotions. The films of Ozu's late period, especially his collaborations with Hara, however, worked with a much smaller canvas, usually with very few sets, limiting the scenes to a character's **40** office kitchen, living room, or garden. In *Late Spring*, Hara's character

37

A) NO CHANGE
B) would represent
C) had represented
D) represent

38

A) NO CHANGE
B) In sum,
C) Nevertheless,
D) Meanwhile,

39

A) NO CHANGE
B) acting style.
C) acting methods that were unique to her.
D) acting style in film and presumably in the theater.

40

A) NO CHANGE
B) office, kitchen, living,
C) office, kitchen, living
D) office, kitchen living,

CONTINUE

Noriko is twenty-seven years old and has not married. Against the 41 council of her friends and family, she has instead chosen to care for her aging widowed father. The conflict and plot are that simple, 42 and Ozu's cinematography and Hara's expressive face show that sometimes the simplest and smallest domestic conflicts can have profound implications.

[1] Hara never formally announced her retirement, though she made her last film in 1963. [2] Rumors have always circulated about Hara's mysterious disappearance from the screen, and viewers' many theories show 43 their grief at having lost such a bright star. [3] Some believe that she had been going blind and did not want to do so in the public eye. [4] In either case, Hara left an indelible mark on the shape of world cinema. [5] Especially in a moment when all cinematic achievement seems to point toward bigger and louder, Setsuko Hara provides the important reminder that smaller and quieter can be just as powerful. 44

41

A) NO CHANGE
B) council from
C) counsel with
D) counsel of

42

A) NO CHANGE
B) for
C) so
D) yet

43

A) NO CHANGE
B) one's
C) his
D) your

44

The writer plans to add the following sentence to this paragraph.

> Others believe that her grief over Ozu's death in 1963 kept her from returning to the cinema.

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

A) after sentence 2.
B) after sentence 3.
C) after sentence 4.
D) after sentence 5.

STOP

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

Math Test – No Calculator

25 MINUTES, 20 QUESTIONS

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

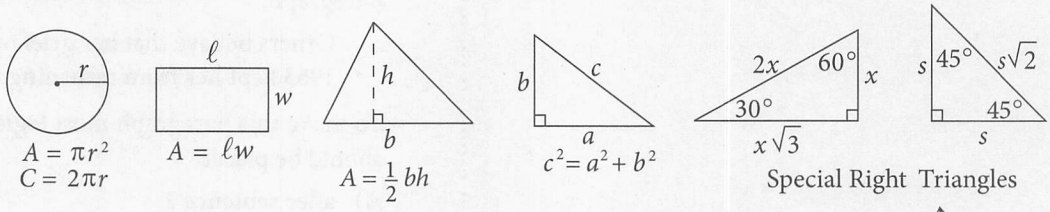
DIRECTIONS

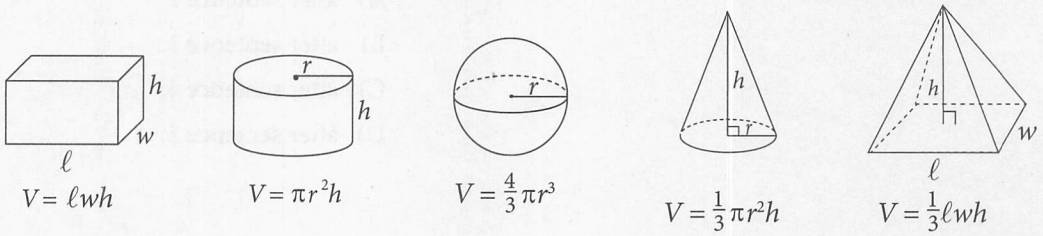
For questions 1–15, solve each problem, choose the best answer from the choices provided, and fill in the corresponding circle on your answer sheet. **For questions 16–20**, solve the problem and enter your answer in the grid on the answer sheet. Please refer to the directions before question 16 on how 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





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

When the equation $-5y - 2x = 10$ is graphed in the xy-plane, which of the following is true?

A) Both the slope and the y-intercept of the line are negative.

B) Both the slope and the y-intercept of the line are positive.

C) The slope of the line is negative, and the y-intercept is positive.

D) The slope of the line is positive, and the y-intercept is negative.

2

$$x + 3y = 9$$

$$3x - y = 17$$

What is the value of $x - y$ for the system of equations above?

A) 5

B) 6

C) 10

D) 20

3

$$6(y^3 + y^2) - 2(y^3 + y^2)$$

Which of the following is equivalent to the expression above?

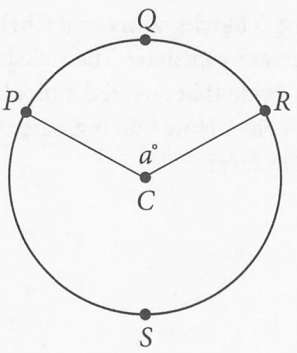
A) $4y^3$

B) $4y^5$

C) $4y^3 - 4y^2$

D) $4y^3 + 4y^2$

4



In the circle above with center C, $a = 120$. If the length of arc $\overset{\frown}{PSR}$ is 8π, what is the length of $\overset{\frown}{PQR}$?

A) 12π

B) 6π

C) 4π

D) 2π

CONTINUE

5

What is the value of a if $300 = \frac{12}{a}$?

A) 0.04

B) 25

C) 60

D) 3,600

6

The equation $F = 3b + 6$ gives the cost of the fare F, in dollars, that a rickshaw driver charges for a ride that covers b blocks. Amy and Chris each took a ride in this driver's rickshaw. The rickshaw driver took Chris on a ride that covered 3 blocks more than did Amy's ride. How much greater was Chris's fare than Amy's fare?

A) $15

B) $9

C) $6

D) $3

7

A glass marble is at the top of a flat ramp at a distance of 48 inches from the ground. If the marble rolls down the ramp such that its distance from the ground decreases at a constant rate of 7 inches per second, which of the following equations gives the distance d, in inches, between the glass marble and the ground t seconds after the marble begins rolling down the ramp?

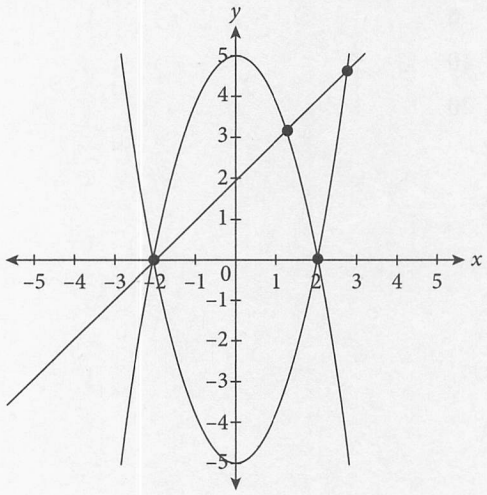
A) $d = \frac{155}{48} - 7t$

B) $d = 48 - 7t$

C) $d = 48t - \frac{155}{7}$

D) $d = 48t - 7$

8



The system of equations graphed in the xy-plane above has exactly n solutions. What is the value of n?

A) 1

B) 2

C) 3

D) 4

CONTINUE

9

$$9(x + 2) - 3(x + 3) = 3(cx + 5)$$

There is no value of x that satisfies the equation above, in which c is a constant. What is the value of constant c?

A) 2

B) 3

C) 4

D) 6

10

For $x > 1$, which of the following is equivalent to the expression $\frac{1}{3x - 2} + 4$?

A) $\frac{3x + 2}{3x - 2}$

B) $\frac{3x + 4}{3x - 2}$

C) $\frac{12x - 7}{3x - 2}$

D) $\frac{12x - 8}{3x - 2}$

11

$$4y^3 - 10y^2 - 36y + 48 = (2y + c)(ky^2 + 3y - 6)$$

In the equation above, c and k are constants. If the equation is true for all values of y, what is the value of ck?

A) -2

B) -16

C) -18

D) -24

12

Which of the following is the set of all solutions to the equation $\frac{2x + 4}{2} = \frac{15}{x}$?

A) {3}

B) {−5, 5}

C) {−5, 3}

D) {0, 3}

CONTINUE

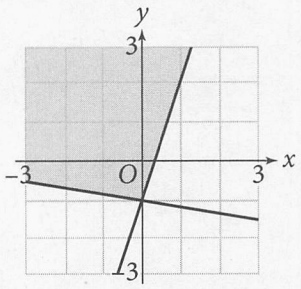
13

$$6y + x \geq -6$$

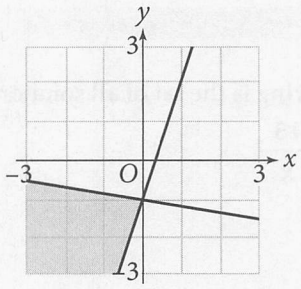
$$y \leq 3x - 1$$

The solution set of the system of inequalities above is represented by the shaded region of which of the following graphs?

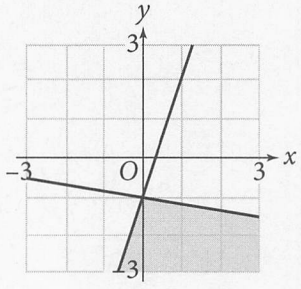
A)



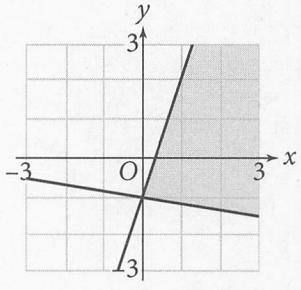
B)



C)



D)



14

$$x = \sqrt{30 - x}$$

Which of the following includes all solutions to the equation above?

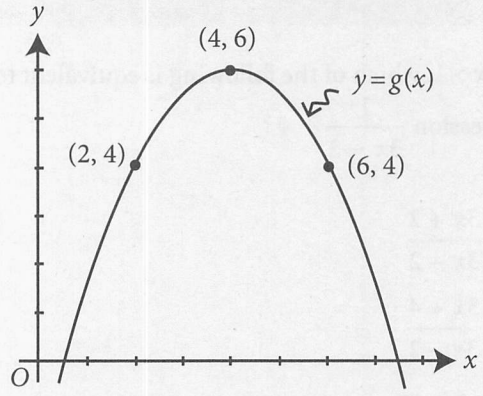
A) There are no values of x that satisfy the given equation.

B) -6 and 5

C) -6

D) 5

15



Which of the following equations defines function g graphed in the xy-plane above?

A) $g(x) = -\frac{1}{2}(x - 4)^2 - 6$

B) $g(x) = -\frac{1}{2}(x - 4)^2 + 6$

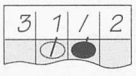
C) $g(x) = -\frac{1}{3}(x + 4)^2 + 6$

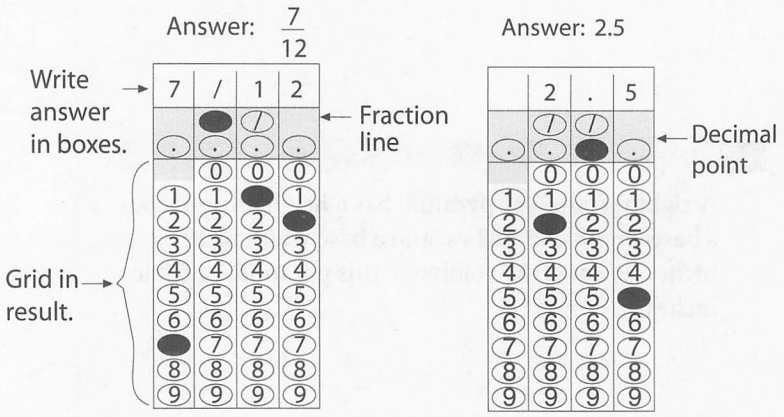
D) $g(x) = -(x + 4)^2 + 6$

CONTINUE

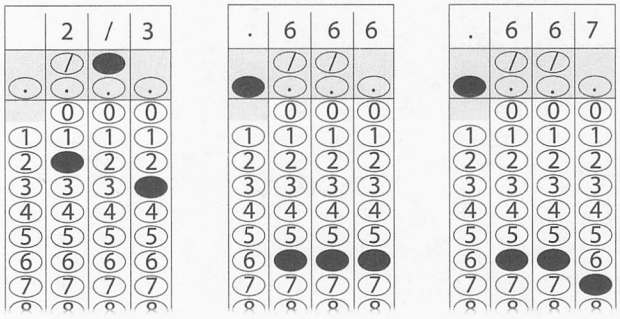
DIRECTIONS

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

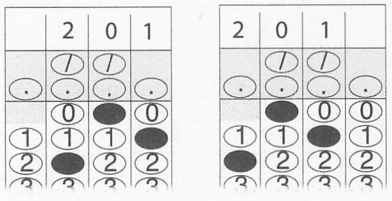
1. Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
2. Mark no more than one circle in any column.
3. No question has a negative answer.
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 as $3\frac{1}{2}$.)
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

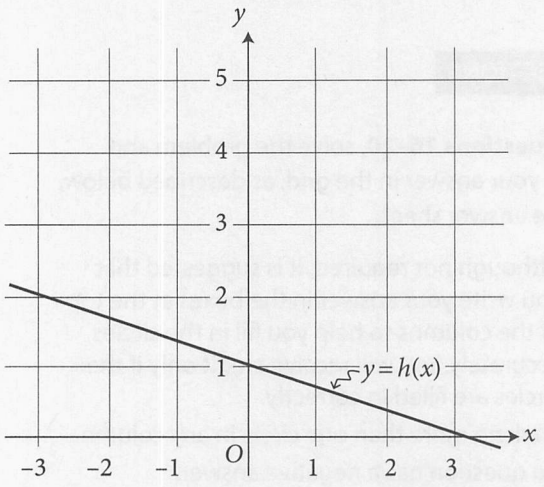
16

If a satisfies the equation $2a - 6 = 2$, what is the value of $4a - 12$?

17

A right rectangular pyramid has a height of 15 inches, a base length of 5 inches, and a base width of 20 inches. What is the volume of this pyramid, in cubic inches?

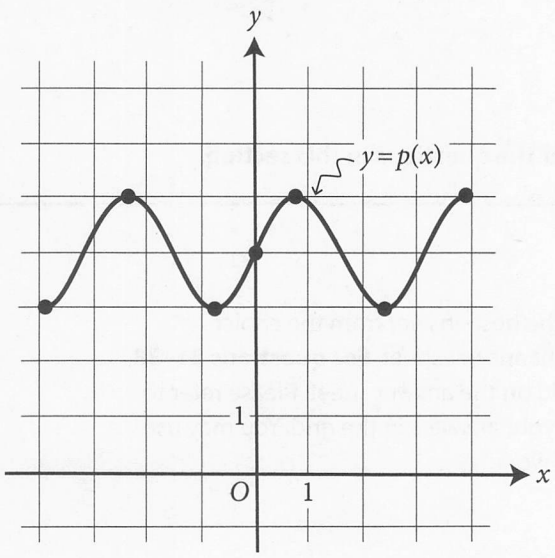
18



Function h is the linear function graphed in the xy-plane above. When linear function k (not shown) is graphed in the xy-plane, it contains the point $(-1, 2)$. If functions h and k are perpendicular, what is the value of $k(0)$?

CONTINUE

19



The complete graph of the function p in the xy-plane is shown in the figure above. Function r, which is defined by $r(x) = p(x) - 2$, is not shown. What is the minimum value of the function r?

20

In triangle ABC with right angle B, $\tan C = \frac{5}{12}$. What is the value of $\cos A$?

STOP

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

Math Test – Calculator

55 MINUTES, 38 QUESTIONS

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

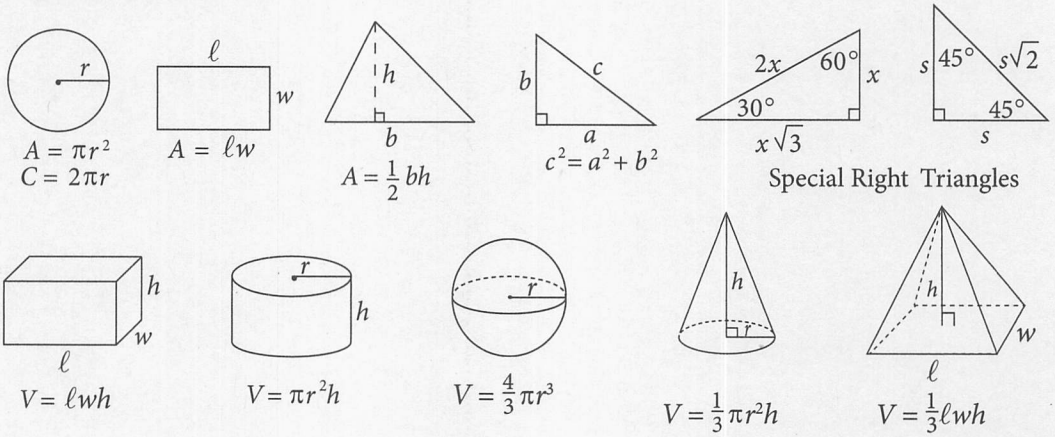
DIRECTIONS

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



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

David has a mobile data plan for which the monthly fee is $20.00 and the data usage fee is $2.50 per gigabyte. Which of the following functions expresses David's cost, in dollars, for a month in which he uses g gigabytes of data?

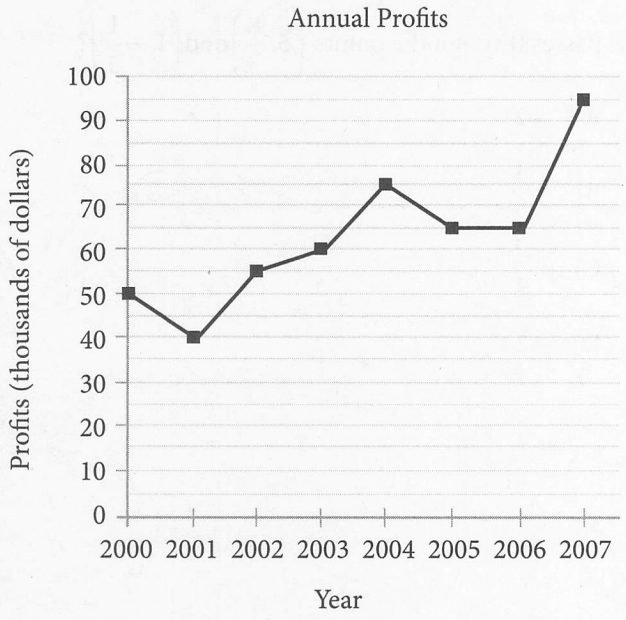
A) $f(g) = 22.50g$

B) $f(g) = 20g + 2.50$

C) $f(g) = 20 + 250g$

D) $f(g) = 20 + 2.50g$

2



The line graph above shows the annual profit of a particular clothing store from 2000 to 2007. According to the graph, what was the greatest change (in absolute value) in the annual profit between two consecutive years?

A) $25,000

B) $30,000

C) $35,000

D) $40,000

3

In order to qualify for a fitness competition, a person must be able to complete 30 pull-ups in one minute. Jim can currently do 14 pull-ups in one minute and believes that he can increase that amount by 7 pull-ups each year. Which of the following represents the number of pull-ups that Jim believes he will be able to complete in one minute y years from now?

A) $7y + 14$

B) $7y + 30$

C) $14y + 7$

D) $14 - 7y$

4

$$v = 17 + 2.5t$$

A constantly accelerating particle is moving in a straight line. After t seconds, the particle is moving at a velocity of v, in meters per second, as shown in the equation above. What is t when v is 67 ?

A) 184.5

B) 67

C) 33.6

D) 20

CONTINUE

5

When function h is graphed in the xy-plane, it has x-intercepts at -4, 2, and 4. Which of the following could define h ?

A) $h(x) = (x - 4)(x - 2)(x + 4)$

B) $h(x) = (x - 4)(x + 2)(x + 4)$

C) $h(x) = (x - 4)^2(x + 2)$

D) $h(x) = (x + 2)(x + 4)^2$

6

When three times a number n is added to 9, the result is 3. What is the result when 4 times n is added to 14 ?

A) -2

B) 3

C) 6

D) 22

7

A coffee shop is filling coffee cups from an industrial urn that contains 64 gallons of coffee. At most, how many 16-ounce cups of coffee can be filled from the urn? (1 gallon = 128 ounces)

A) 4

B) 512

C) 1,024

D) 2,048

8

What is the slope of the line in the xy-plane that passes through the points $\left(5, \frac{8}{3}\right)$ and $\left(1, -\frac{1}{3}\right)$?

A) -2

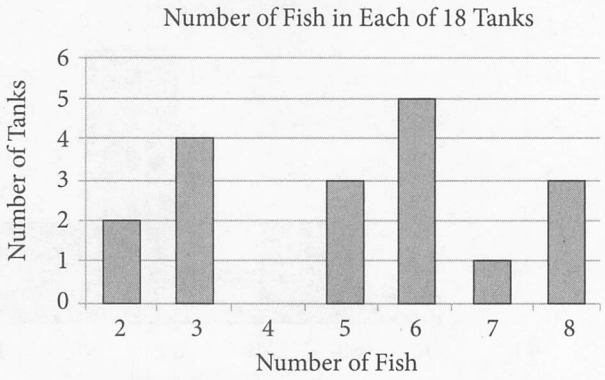
B) $-\frac{4}{3}$

C) $\frac{3}{4}$

D) 2

CONTINUE

9



Based on the bar graph above, which of the following is closest to the average (arithmetic mean) number of fish per tank?

A) 5

B) 6

C) 7

D) 8

10

A telephone survey was conducted in order to determine if people in City C are more likely to work 9-to-5 office jobs than other jobs. The research team called 5,000 random people between 12 P.M. and 4 P.M. on a Thursday. Of the 5,000 people called, 3,000 did not answer, and 250 refused to participate. Which of the following was the biggest flaw in the design of the survey?

A) The time the survey was taken

B) Population size

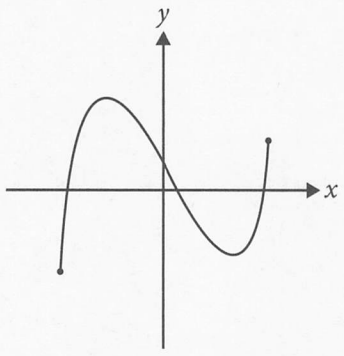
C) Sample size

D) The fact that the survey was done by telephone

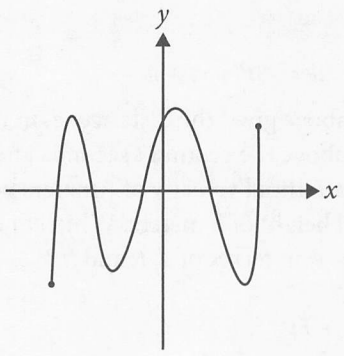
11

If the function p has exactly four distinct roots, which of the following could represent the complete graph of $y = p(x)$ in the xy-plane?

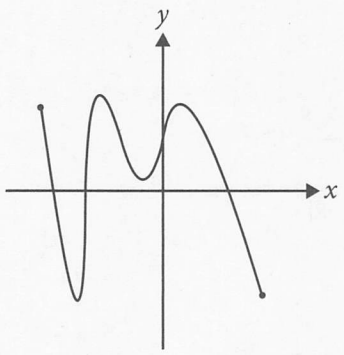
A)



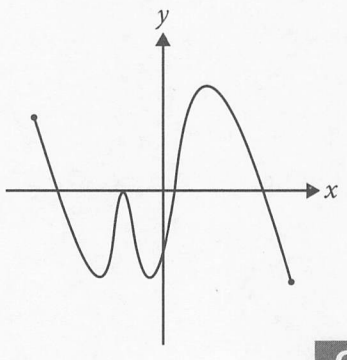
B)



C)



D)



CONTINUE

12

One morning in a particular restaurant, 85 percent of the customers ordered the brunch special. Which of the following could be the total number of customers in the restaurant that morning?

A) 40

B) 42

C) 44

D) 48

13

$$d = -8t^2 + vt + h$$

The equation above gives the distance, d, in meters, a projectile is above the ground t seconds after it is released with an initial velocity of v meters per second from an initial height of h meters. Which of the following gives v, in terms of d, t, and h ?

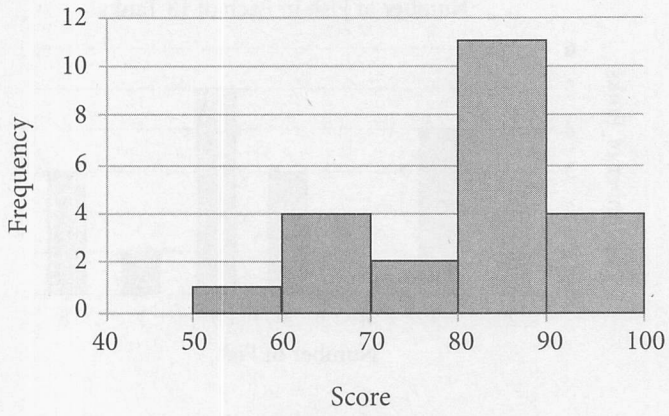
A) $v = \dfrac{d - h}{t} + 8t$

B) $v = \dfrac{d + h}{t} - 8t$

C) $v = \dfrac{d - h + 8}{t}$

D) $v = d + h - 8t$

14



The histogram above shows the distribution of the scores of 22 students on a recent biology test. Which of the following could be the median score of the 22 students represented in the histogram?

A) 68

B) 71

C) 77

D) 84

CONTINUE

Questions 15–17 refer to the following information.

A survey of 130 randomly selected workers in a particular metropolitan area was conducted to gather information about average daily commute times. The data is shown in the table below.

	Commutes by public transit	Does not commute by public transit	Total
Less than 1 hour	22	46	68
At least 1 hour	29	33	62
Total	51	79	130

15

Which of the following is closest to the percent of those surveyed who commute using public transit?

A) 65%

B) 46%

C) 39%

D) 32%

16

In 2014, the population of the metropolitan area from the survey was about 13 million. If the survey results were used to estimate information about commute times throughout the metropolitan area, which of the following is the best estimate for the number of individuals who used public transit and had an average daily commute of at least one hour?

A) 290,000

B) 2,200,000

C) 2,900,000

D) 6,200,000

17

Based on the data, how many times more likely is it for a person with a commute of less than 1 hour NOT to commute by public transit than it is for a person with a commute of at least one hour NOT to commute by public transit? (Round the answer to the nearest hundredth.)

A) 1.39 times as likely

B) 1.27 times as likely

C) 0.78 times as likely

D) 0.72 times as likely

CONTINUE

18

In order to determine the effect that caffeinated beverage *C* would have on sleep, researchers conducted a study. From a large population of people without sleep disorders, 500 subjects were randomly selected. Half the subjects were randomly selected to consume beverage *C* and the rest did not consume beverage *C*. The results of the study showed that the subjects who consumed beverage *C* slept less than those who did not consume beverage *C*. Based on the design and results of the study, which of the following statements is the best conclusion?

A) Beverage *C* will cause more loss in sleep than all other caffeinated beverages.

B) Beverage *C* will cause a substantial loss in sleep.

C) Beverage *C* is likely to reduce the amount of sleep of people without sleep disorders.

D) Beverage *C* will reduce sleep of anyone who consumes it.

19

The sum of four numbers is 1,764. One of the numbers, n, is 40% more than the sum of the other three numbers. What is the value of n?

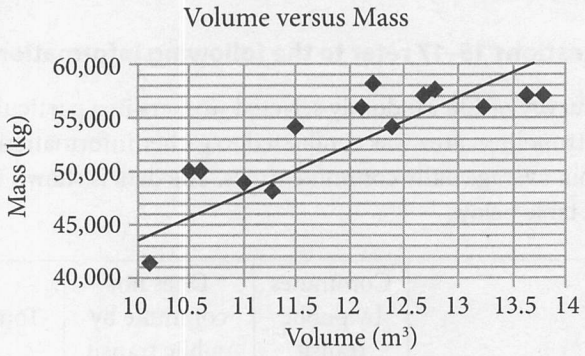
A) 287

B) 735

C) 1,029

D) 1,260

20



Selin weighs 14 different objects of similar density. The scatterplot shown above shows the volume of each object and the corresponding weight of each object. The line of best fit for the data is shown above. For the object that had a volume of 11.5 m^3, the actual mass was about how many kilograms more than the mass predicted by the line of best fit?

A) 1,000

B) 2,000

C) 3,000

D) 4,000

CONTINUE

21

Jessica owns a store that sells only laptops and tablets. Last week, her store sold 90 laptops and 210 tablets. This week, the sales, in number of units, of laptops increased by 50 percent, and the sales, in number of units, of tablets increased by 30 percent. By what percentage did total sales, in units, in Jessica's store increase?

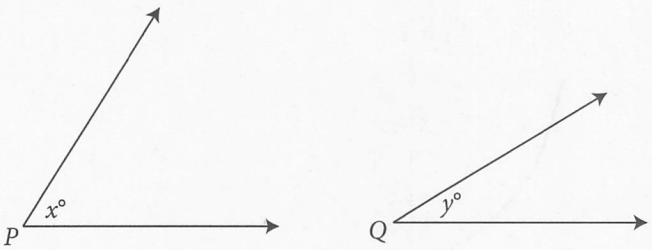
A) 20 percent

B) 25 percent

C) 36 percent

D) 80 percent

22



Note: Figures not drawn to scale.

For acute angles P and Q shown above, $\cos(x°) = \sin(y°)$. If $x = 3c - 23$ and $y = 7c - 42$, what is the value of c?

A) 24.5

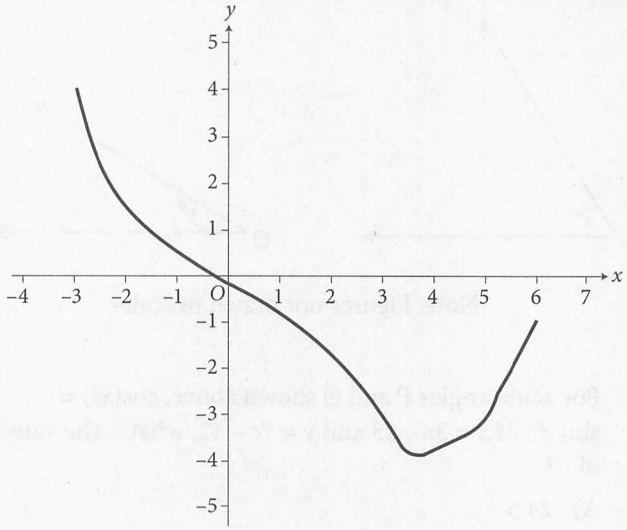
B) 15.5

C) 9.0

D) 6.0

CONTINUE

23



What is the maximum value of the function graphed in the xy-plane above, for $-3 \leq x \leq 6$?

A) 4

B) 5

C) 6

D) ∞

24

Matthew constructs a fence around a patch of grass in his backyard. The patch has a width that is 8 feet more than 4 times the length. What is the perimeter of the fence if Matthew's patch of grass has an area of 5,472 square feet?

A) 364 feet

B) 376 feet

C) 396 feet

D) 400 feet

25

In the xy-plane, the line determined by the points $(c, 3)$ and $(27, c)$ intersects the origin. Which of the following could be the value of c ?

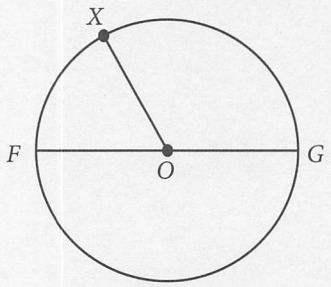
A) 0

B) 3

C) 6

D) 9

26



In the circle above, the length of arc $\overset{\frown}{FXG}$ is 14π. If $\overline{FG}$ is a chord that passes through the circle's center, O, what is the length of the segment $\overline{XO}$?

A) 7

B) 14

C) 28

D) 56

CONTINUE

27

Let p and q be numbers such that $-|p| < q < |p|$. Which of the following must be true?

I. $p > 0$

II. $|p| > -q$

III. $p > |q|$

A) I only

B) II only

C) II and III only

D) I, II, and III

28

A rectangular container with a base that measures 10 feet by 10 feet is filled with jelly beans. The container is divided into regions each with the same height as the container and a square base with sides that measure 1 foot each. Sherman randomly selects ten of these regions and counts the number of blue jelly beans in each region. The results are shown in the table below.

Region	Blue Jelly Beans	Region	Blue Jelly Beans
I	20	VI	22
II	21	VII	25
III	27	VIII	24
IV	31	IX	28
V	19	X	23

Which of the following is a reasonable approximation of the number of blue jelly beans in the entire container?

A) 25,000

B) 2,500

C) 250

D) 25

CONTINUE

29

	Flavor	
Product Type	Frozen Yogurt	Ice Cream
Vanilla		
Chocolate		
Total	32	152

The incomplete table above shows the sales for a particular sweet shop by product and flavor. There were 4 times as many vanilla ice creams sold as vanilla frozen yogurts, and there were 6 times as many chocolate ice creams sold as chocolate frozen yogurts. If there were a total of 32 frozen yogurts and 152 ice creams sold, and no flavors other than vanilla and chocolate were available, which of the following is closest to the probability that a randomly selected ice cream sold was vanilla?

A) 0.250

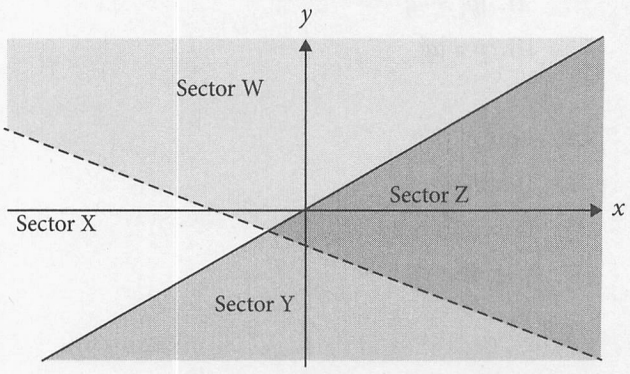
B) 0.435

C) 0.526

D) 0.667

30

$$\begin{cases} y \geq x \\ 3y < -2x - 3 \end{cases}$$



A system of inequalities is graphed above. Which sector or sectors on the graph could represent all of the solutions to the system shown?

A) Sectors Y and Z

B) Sectors W and Y

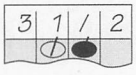
C) Sector W

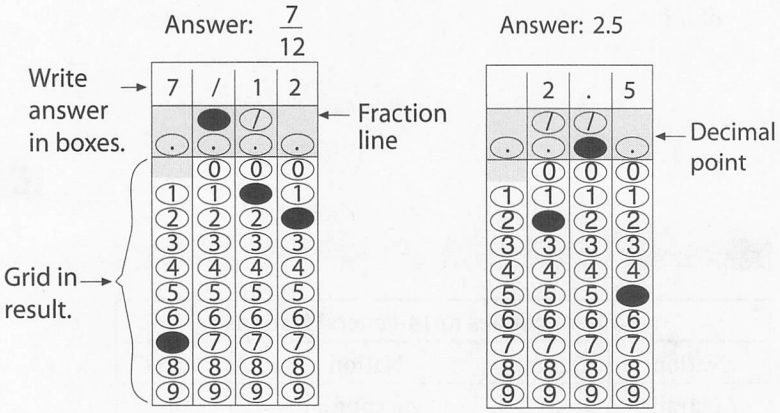
D) Sector X

CONTINUE

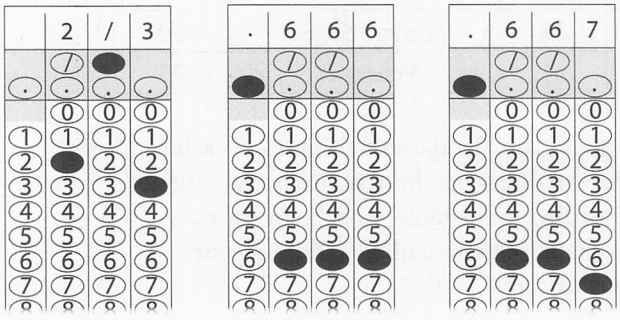
DIRECTIONS

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

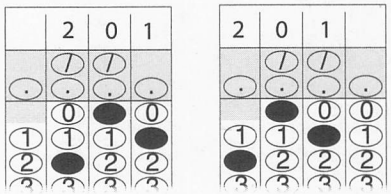
1. Although not required, it is suggested that you write your answer in the boxes at the top of the columns to help you fill in the circles accurately. You will receive credit only if the circles are filled in correctly.
2. Mark no more than one circle in any column.
3. No question has a negative answer.
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 as $3\frac{1}{2}$.)
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

At a certain food truck, hamburgers are sold for $5 each and hot dogs are $3 each. If Martina buys one hamburger and h hot dogs, and spends at least $20 and no more than $25, what is one possible value of h?

32

Number of States in 14 Federal Nations			
Nation	States	Nation	States
Australia	6	Micronesia	4
Austria	9	Nigeria	36
Brazil	26	Saint Kitts and Nevis	2
Germany	16	South Sudan	10
India	29	Sudan	17
Malaysia	13	United States	50
Mexico	31	Venezuela	23

The table above lists the number of states in each of the 14 federal nations that have subdivisions called states. According to the table, what is the mean number of states of these nations? (Round your answer to the nearest tenth.)

33

In the xy-plane, the point $(-2, 6)$ lies on the graph of the function $g(x) = 2x^2 + kx + 18$. What is the value of k?

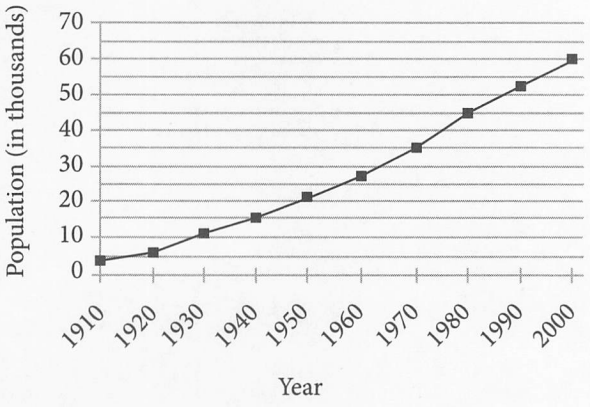
34

In a certain college dormitory, 108 students are assigned dorm rooms. The dormitory has 26 dorm rooms, each of which is assigned 3 or 5 students. How many of the dorm rooms will be assigned 3 students?

CONTINUE

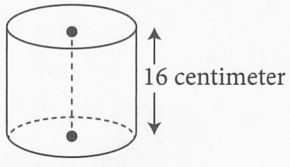
35

Population of Town A
Each Decade from 1910 to 2000



According to the figure shown above, the population of Town A in 1970 was what fraction of the population of Town A in 2000 ?

36



A wooden block is in the shape of the right circular cylinder shown above. If the volume of the wooden block is 64π cubic centimeters, what is the diameter of the base of the cylinder, in centimeters?

Questions 37 and 38 refer to the following information.

$\omega^2 = \omega_0^2 + 2\alpha\theta$ (angular position – angular velocity)

$\omega = \omega_0 + \alpha t$ (time – angular velocity)

$\theta = \omega_0 t + \frac{1}{2}\alpha t^2$ (time – angular position)

A carousel is rotating at an angular velocity of 90 degrees per second. The instant a particular point on the carousel reaches angular position $\theta = 0°$, the carousel operator flips a switch, causing the carousel at a constant angular acceleration to slow down and eventually change direction. The equations above describe the constant-acceleration motion of the carousel, where ω_0 represents the initial angular velocity, ω is the angular velocity as it travels, θ is the angular position of the particular point on the carousel, t is the time since the switch was flipped, and α is the constant angular acceleration ($-12.6°/s^2$).

37

To the nearest degree, at what angular position will the carousel change direction?

38

To the nearest second, how long will it take the carousel to come to a complete stop before it changes direction?

END OF TEST

DO NOT RETURN TO A PREVIOUS SECTION.

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Completely darken bubbles with a No. 2 pencil. If you make a mistake, be sure to erase mark completely. Erase all stray marks.

1.

YOUR NAME: (Print) _____ (Last) (First) (M.I.)

SIGNATURE: _____ DATE: / /

HOME ADDRESS: (Print) _____ (Number and Street)

_____ (City) (State) (Zip Code)

PHONE NO.: (Print) _____

IMPORTANT: Please fill in these boxes exactly as shown on the back cover of your test book.

2. TEST FORM

3. TEST CODE

4. REGISTRATION NUMBER

3. TEST CODE					4. REGISTRATION NUMBER					
0	A	J	0	0	0	0	0	0	0	0
1	B	K	1	1	1	1	1	1	1	1
2	C	L	2	2	2	2	2	2	2	2
3	D	M	3	3	3	3	3	3	3	3
4	E	N	4	4	4	4	4	4	4	4
5	F	O	5	5	5	5	5	5	5	5
6	G	P	6	6	6	6	6	6	6	6
7	H	Q	7	7	7	7	7	7	7	7
8	I	R	8	8	8	8	8	8	8	8
9			9	9	9	9	9	9	9	9

6. DATE OF BIRTH

Month	Day		Year	
JAN				
FEB	0	0	0	0
MAR	1	1	1	1
APR	2	2	2	2
MAY	3	3	3	3
JUN		4	4	4
JUL		5	5	5
AUG		6	6	6
SEP		7	7	7
OCT		8	8	8
NOV		9	9	9
DEC				

7. SEX

MALE

FEMALE

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5. YOUR NAME

First 4 letters of last name					FIRST INIT	MID INIT
A	A	A	A		A	A
B	B	B	B		B	B
C	C	C	C		C	C
D	D	D	D		D	D
E	E	E	E		E	E
F	F	F	F		F	F
G	G	G	G		G	G
H	H	H	H		H	H
I	I	I	I		I	I
J	J	J	J		J	J
K	K	K	K		K	K
L	L	L	L		L	L
M	M	M	M		M	M
N	N	N	N		N	N
O	O	O	O		O	O
P	P	P	P		P	P
Q	Q	Q	Q		Q	Q
R	R	R	R		R	R
S	S	S	S		S	S
T	T	T	T		T	T
U	U	U	U		U	U
V	V	V	V		V	V
W	W	W	W		W	W
X	X	X	X		X	X
Y	Y	Y	Y		Y	Y
Z	Z	Z	Z		Z	Z

Test 5 Start with number 1 for each new section.
If a section has fewer questions than answer spaces, leave the extra answer spaces blank.

Section 1—Reading

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

Section 2—Writing and Language Skills

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

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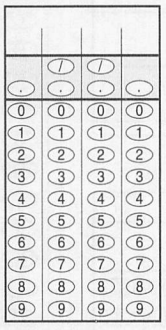
Test 5 Start with number 1 for each new section.
If a section has fewer questions than answer spaces, leave the extra answer spaces blank.

Section 3—Mathematics: No Calculator

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

16.



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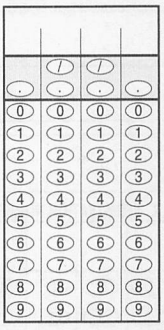

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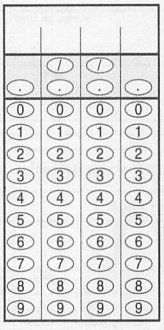

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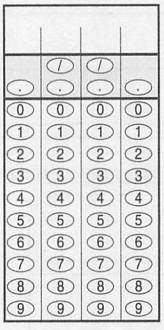

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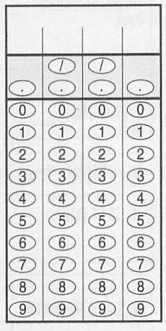

Section 4—Mathematics: Calculator

1. (A) (B) (C) (D)
2. (A) (B) (C) (D)
3. (A) (B) (C) (D)
4. (A) (B) (C) (D)
5. (A) (B) (C) (D)
6. (A) (B) (C) (D)
7. (A) (B) (C) (D)
8. (A) (B) (C) (D)
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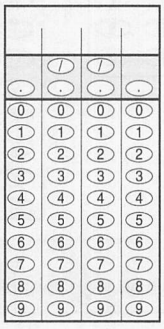
18. (A) (B) (C) (D)
19. (A) (B) (C) (D)
20. (A) (B) (C) (D)
21. (A) (B) (C) (D)
22. (A) (B) (C) (D)
23. (A) (B) (C) (D)
24. (A) (B) (C) (D)
25. (A) (B) (C) (D)
26. (A) (B) (C) (D)
27. (A) (B) (C) (D)
28. (A) (B) (C) (D)
29. (A) (B) (C) (D)
30. (A) (B) (C) (D)

31.



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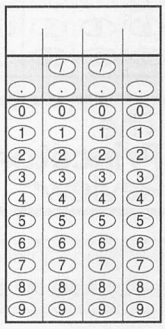

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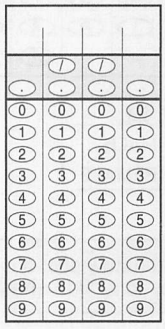

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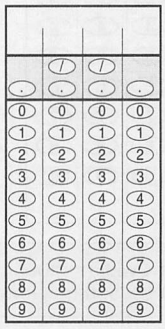

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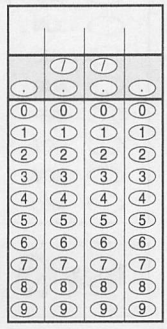

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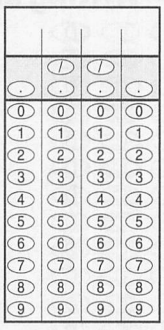

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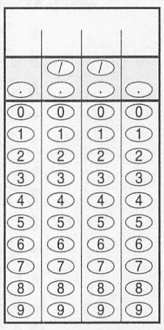

38.