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AMERICA'S PREMIERE TESTING READINESS PROGRAM

SAT®
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Cambridge Navigator Plus:
The Complete Explanation Guide
to the Retired Test

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5 Ways to Increase Score Gains Using Cambridge's *Navigator Plus*

Navigator Plus is Cambridge's complete explanation guide to a previously administered test. It includes explanations for each item on the test, categorization for each item, an answer key, and more.

The following list provides suggestions for implementing the Navigator into your program to increase score gains.

1. **Simulate test day as much as possible when proctoring tests.** Students will benefit from a testing experience that closely simulates what they will experience on test day. They will feel more confident if they know what to expect.

2. **Follow up when you receive your data.** Use the reports you receive from Cambridge to cover the items your class struggled as a group to answer (see the Error Analysis report). Taking this step within two weeks of administering the test will ensure that your students haven't forgotten the items you cover and will be able to learn from their testing experiences.

3. **Use the Pre-Assessment Item references in the *Victory* lesson to illustrate key points.** Your teacher's guide includes references to items on your pre-assessment that you can use as additional examples. Keep a copy of your pre-assessment test booklet handy so that you can cover these items with your students. Using pre-assessment items as additional examples helps students connect the concepts you are teaching with their test-day experiences.

4. **Don't forget to review the wrong answers.** Many explanations in this Navigator packet include references to each wrong answer choice. Students will benefit from reviewing why each wrong answer is wrong so that they can recognize what makes the right answer correct and use the process of elimination to eliminate similar wrong answers in the future.

5. **Pay attention to item categories.** Each item in this Navigator packet includes a category path that corresponds to the course concept outline in your *Victory* text as well as the categories listed in the Item Index of your *Victory* text. Use the Item Index to identify items students can use for further practice.
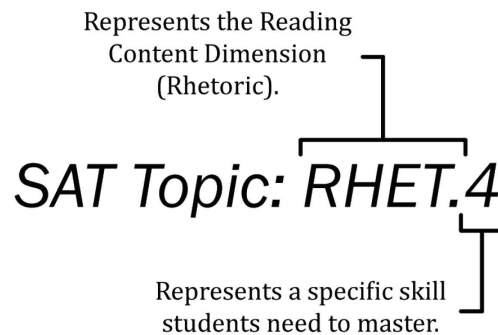
Category Paths and SAT Topics

Throughout these explanations, each item is categorized in two ways. First, each explanation includes a **Cambridge Category Path** which links the item to the Course Concept Outline in Cambridge's *Victory* series. For example:

> *Math: Multiple-Choice/Geometry/Triangles/Pythagorean Theorem*

An item with this particular category path is found in the Math Test (these items have a Level 1 label of "Math: Multiple-Choice" or "Math: Student-Produced Response") and tests students' knowledge of geometry (Level 2 of the category path), more specifically of triangles (Level 3), and even more specifically of the Pythagorean theorem (Level 4). The *Victory* Math Lessons include a section on the Pythagorean theorem, which you can find by referencing the Course Concept Outline at the beginning of the mathematics section in the *Victory* book. Additionally, you can find items testing geometry, triangles, or the Pythagorean theorem using the Item Index at the end of the *Victory* Student Text and Teacher's Guide.

Second, each explanation includes an ***SAT Topic*** references a specific topic identified as tested on the SAT by the College Board. You can find items testing this SAT Topic using the searchable index available on the Teacher Resource Center (www.cambridgevictory.com). Here is an example of an SAT Topic reference:

Represents the Reading
Content Dimension
(Rhetoric).

SAT Topic: RHET.4

Represents a specific skill
students need to master.

Reading

1. **(A)** *Reading/Literary Fiction/Main Idea*. **SAT Topic: INFID.3.** This item is a good example of a time in which to use the Goldilocks Rule. The correct answer should be neither too broad nor too narrow, but just right. (B) and (C) are both too narrow. Though it could probably be inferred that Edward Crimsworth feels some sense of competition with the narrator, (B), this idea is only presented briefly in the second paragraph. As for (C), the narrator discusses the idea of regretting his choice of a profession in the first paragraph, but once again, this idea is not carried through the rest of the passage. (D), on the other hand, is too broad. Though the narrator does talk about feeling frustrated and despairing, nothing in the passage suggests he ever felt optimistic.

   TIP The Goldilocks Rule is often used with Main Idea items. Incorrect answers will be either too broad (more than the scope of the passage) or too narrow (deal with only one or two ideas in the passage), while the correct answer will fit just right.

2. **(B)** *Reading/Literary Fiction/Development*. **SAT Topic: RHET.2b.** The opening sentence of the passage illustrates a common human failing: no one likes to admit that he or she is wrong. In the narrator's case, he is talking particularly about not wanting to admit he has made a mistake in choosing his job, especially since it seems others may have tried to dissuade him from his choice (lines 11–14). His stubbornness in not wanting to admit he was wrong seems to be the only thing keeping him at his job, despite his obvious dissatisfaction. (B) provides the best summary of this dilemma. As for the other choices, nothing about the first sentence of the passage suggests a controversy, (A). The passage discusses the narrator's plight in being employed by Mr. Crimsworth, not the plight of Mr. Crimsworth himself, (C). And (D) is not supported by the passage: nothing about the first sentence gives the idea of maliciousness, and nothing about the passage suggests that the narrator himself is malicious.

3. **(C)** *Reading/Literary Fiction/Development*. **SAT Topic: RHET.2b.** The first sentence of the first paragraph uses general pronouns—"no man," "he," "his"—to talk about general situations. Then, throughout the rest of the paragraph (lines 6–33), the narrator shifts his focus to how his particular woes fit within the general situation. Thus, the best answer for this item is (C). (A) is incorrect because nothing in the first paragraph suggests past confidence. (B) is incorrect because while the narrator does reflect a little on the potential tediousness of some of the tasks that have fallen to him in pursuit of his desire to become a tradesman, he seems content to endure those and doesn't express a desire for finding another job. Finally, (D) is incorrect because although the narrator does mention in the first paragraph a few factors that make him unhappy, he never identifies alternatives to make him happier.

4. **(A)** *Reading/Literary Fiction/Vocabulary*. **SAT Topic: RHET.1.** (A) is the best answer. The entire passage is focused on the narrator's despair with his current situation, and words like "shade" and "darkness" reflect the narrator's feelings. The other choices are not supported by the passage: the narrator's thoughts are depressed, not sinister, (B); he shows no sign of being afraid of confinement, (C); and though he talks about returning to his room to enjoy a cheerful fire, that does not necessarily suggest a desire for rest, (D).

5. **(D)** *Reading/Literary Fiction/Implied Idea*. **SAT Topic: INFID.1b.** In the second paragraph of the passage, the narrator details a wide variety of reasons why Mr. Crimsworth doesn't like him: he has a southern accent; he is educated, punctual, industrious, and accurate. According to the narrator, however, Edward Crimsworth still would have "forgiven me much" (line 50) if there had been one thing in which the narrator was inferior to Mr. Crimsworth (line 44). Thus, (D) is the correct answer. As for the other choices, (A) seems to go directly against the passage, which uses imagery and language to suggest the narrator is despondent and depressed, not in high spirits. As for (B), the reference to the narrator's educated language suggests that he doesn't come from a humble background. Finally, as for (C), lines

10–11 of the passage state that the narrator is not of "an impatient nature" and thus probably not prone to rash actions.

6. **(B)** *Reading/Literary Fiction/Explicit Detail*. **SAT Topic: INFID.1a.** In lines 61–62 of the passage, the narrator states that he "had long ceased to regard Mr. Crimsworth as my brother," which suggests that at one time, at least, he had viewed Mr. Crimsworth in a positive light. Thus, (A) and (D) can be eliminated—rivals and demanding people are not generally viewed positively. This leaves (B) and (C), and (C) can be eliminated since the use of the word "brother" suggests someone who is on an equal footing with the narrator, and a judge would probably not be on that equal footing.

7. **(D)** *Reading/Literary Fiction/Textual Evidence*. **SAT Topic: INFID.2.** As discussed in the previous item, lines 61–62 of the passage, (D), provide the best evidence that the narrator initially viewed Mr. Crimsworth as an ally.

8. **(D)** *Reading/Literary Fiction/Development*. **SAT Topic: RHET.1.** Process of elimination would work well for this item. In lines 48–53 of the passage, "Caution, Tact, and Observation" were stated as having "lynx-eyes" that watched Edward's malice, which wanted to "steal snake-like" on the narrator's tact. In these two metaphors, there is clearly contention between the narrator's qualities and Edward's. Thus, (A) and (B) can be eliminated, since neither of them echo this conflict. (C) would be the next best choice, but although there is contention between the narrator and Edward, the comparison here never suggests that an altercation is likely to occur. (D), then, is the best answer.

> **TIP** Process of elimination (POE) is a very useful tool in the Reading test arsenal. If students can eliminate answer choices that they know for sure are wrong, they will have a better chance of finding the right answer—or at least of making an informed guess.

9. **(B)** *Reading/Literary Fiction/Implied Idea*. **SAT Topic: INFID.1b.** The narrator, in the very last sentence of the passage, speculates on whether his fire would be out in his room and then finds that there is no "cheering red gleam" (lines 73–74). The best synonym for a lack of cheer would be (B), dreary. There is no support in the passage for either (A) or (C). Although "intolerable," (D), is mentioned in the passage in line 67, it references how the narrator views his life, not his living arrangements.

10. **(D)** *Reading/Literary Fiction/Textual Evidence*. **SAT Topic: INFID.2.** The last few lines of the passage, lines 68–74, discuss the lack of a cheerful fire in the narrator's sitting room and emphasize the dreariness of his living quarters.

11. **(D)** *Reading/Social Studies/Main Idea*. **SAT Topic: RHET.4.** In lines 11–12 of the passage, the author explicitly states his main purpose: to examine "the different views on where ethics should apply when someone makes an economic decision." The statement in (D) best lines up with this idea. However, if your students missed this or are having trouble with the passage, this item, like item #1, provides a good opportunity to utilize the Goldilocks Rule in eliminating answer choices. (A) is incorrect because it is too narrow; the author mentions cost-benefit analysis in the third paragraph, lines 22–30, but that is not the main purpose of the whole passage. (B), too, is too narrow. The discussion of psychology is confined to the last paragraph. (C) entirely misses the point; the whole point of the passage is that free markets do indeed allow for the use of ethical economics, which makes (D) the correct answer choice.

12. **(D)** *Reading/Social Studies/Implied Idea*. **SAT Topic: RHET.5a.** As mentioned in the previous item, the main purpose of this passage is a discussion of how to evaluate ethics in economics. In lines 4–5 of the passage, the author points out a potential criticism of his position: that it is not necessary to evaluate the ethics of free market economics because free markets are ethical by default since they enable buyers and sellers to make choices about what to buy and sell. As for the other choices, (A) is incorrect because the reference to Adam Smith and his philosophy of ethical economic behavior was not meant to be an objection but rather an observation. (B) is incorrect because the author doesn't bring up counterarguments to free markets and their profitability but to what it means to be ethical within them.

And (C) is incorrect because the brief discussion of devalued currency (lines 52–54) is an example, not a potential argument.

13. **(A)** *Reading/Social Studies/Textual Evidence*. **SAT Topic: INFID.2.** Lines 4–5 of the passage, in which the author brings up a potential counterargument to his position, best supports the answer to the previous question. None of the other choices provide the necessary evidence.

14. **(B)** *Reading/Social Studies/Vocabulary*. **SAT Topic: SUM.2.** (A), "lovingly held," and (C), "eagerly hugged," can be eliminated since they are common meanings of the word "embraced" but don't fit with the tone of the passage. That leaves (B) and (D). "Adopted" and "used" both have similar meanings, so we have to turn to the first words of each choice. "Readily," (B), seems to fit more with the context of the passage; there is nothing to suggest that the adoption of corporate social responsibility was made "reluctantly," (D).

> **TIP** SAT vocabulary items usually don't test the most common meanings of the words they are testing. In most cases, students can immediately eliminate the most common meanings of words, which makes it easier for them to find the right answer.

15. **(C)** *Reading/Social Studies/Main Idea*. **SAT Topic: RHET.4.** In the sixth paragraph (lines 57–66), the author talks about "three versions" of approaching economic ethics. Those three versions are Adam Smith's (lines 11–30), Aristotle's (lines 31–44), and the approach discussed in the fifth paragraph (lines 45–56). Therefore, the best answer is (C). The other choices are incorrect because they are all mentioned elsewhere in the passage, not in the fifth paragraph.

16. **(A)** *Reading/Social Studies/Vocabulary*. **SAT Topic: SUM.2.** This item could be potentially tricky since all of the answer choices are similar and the differences hinge on subtleties of meaning. Use of POE would be the best choice for this item. (B) could probably be the first to be eliminated since its definition is the widest of the mark. In the context in which "clashes" is used, the author is talking about moral dilemmas that arise when the three different views of economic ethics pull someone in various directions. "Mismatches," (B), just doesn't have quite the right connotation. (D) can be eliminated next. A brawl is a fight, and though three views of ethics may be at odds with one another, they won't actually fight. That leaves (A) and (C). (C) can be eliminated for much of the same reason as (D): ideas or moral dilemmas can't actually collide with one another, but they can conflict with one another, (A).

17. **(C)** *Reading/Social Studies/Textual Evidence*. **SAT Topic: INFID.2.** The correct answer to this item is (C). In lines 59–64, the author uses fair trade coffee as an example of a time when the three different approaches to ethics can be used in harmony: it has good consequences (the first approach), it is virtuous (the second approach), and it is the right way to act in a market that's flawed (the third approach). As for the other choices, (A) merely states that there are different views to approaching ethics and doesn't give any examples of how these views share common ground. (B) applies only to the third approach. And (D), like (A), doesn't mention anything that could be construed as common ground between the three approaches.

18. **(C)** *Reading/Social Studies/Main Idea*. **SAT Topic: RHET.2b.** In the final paragraph, the author discusses the use of psychology as a way to help predict human behavior and to possibly define economic ethics. The best summary for this idea is presented in (C). As for the other choices, (A) and (B) are both ideas that are mentioned in the paragraph but are not the main idea. (D) completely misses the mark. Nothing in the final paragraph talks about reforming the free market, only about possibly anticipating decisions within it.

19. **(A)** *Reading/Social Studies/Data Presentations*. **SAT Topic: SYN.2.** The easiest way to answer data presentation items like this one will be simply to test each answer choice. (A) is correct: in all the years shown, fair trade coffee earned greater profits than regular coffee did. (B) is incorrect because the regular coffee line fluctuated. (C) is incorrect because fair trade coffee profits did not increase from 2004

to 2006. And (D) is incorrect because the profit lines were not equal in 2008; the fair trade coffee profits were almost 80 cents higher than regular coffee profits per pound.

TIP Testing answer choices works well for both Vocabulary and some Data Presentations items. For Vocabulary items, simply replace the tested word with the answer choices in the sentence to see which makes the most sense in context. For Data Presentations, check the information of each answer choice to see which one displays the correct information.

20. **(B)** *Reading/Social Studies/Data Presentations.* **SAT Topic: SYN.2.** Where on the graph is there the greatest distance between the fair trade coffee line and the regular coffee line (so the greatest difference between per-pound profits)? That would be from 2002 to 2004, (B), which is the correct answer.

21. **(C)** *Reading/Social Studies/Data Presentations.* **SAT Topic: SYN.2.** Of the three data presentation items presented so far, this one is the trickiest. It involves more than just reading the graph; it requires an understanding of the main ideas of the passage and how they relate to the information presented on the graph. The graph shows that fair trade coffee consistently earned higher profits per pound than regular coffee, and in lines 59–64 of the passage, the author discusses how purchasing fair trade coffee could be a way to act ethically in the free market. (C) best synthesizes the information in the graph and the idea in the passage. As for the other choices, (A) goes directly against the information provided in the graph: purchasing fair trade coffee shows greater profit per pound, which is not counterproductive to a free market economy. Nothing about the graph suggests anything about character or about how people fear losses more than hope for gains, so (B) and (D) are both incorrect.

22. **(C)** *Reading/Natural Science/Implied Idea.* **SAT Topic: INFID.1b.** In the first sentence of Passage 1, the author states that using the Internet is "not universally bad" and then goes on in the next couple of paragraphs to explain various benefits to browsing online. However, in the first sentence of the third paragraph (lines 23–25), the author then states that "it would be a serious mistake" to simply see the benefits and "conclude that the Web is making us smarter." He follows this statement up with various negative consequences of using the Web. (C) best summarizes the ideas presented: some positive effects, but also some negative ones. As for the other choices, (A) is never an idea that is mentioned in the passage, either implicitly or explicitly. In fact, multiple references to studies might show that that the author believes that screen-based technologies *are* being thoroughly studied. (B) directly contradicts the passage; in lines 39–40, the author says that the brain is plastic, not rigid. And (D) has no support in the passage; though the author discusses positive and negative effects of screen-based technologies, nothing in the passage either encourages or discourages their use.

23. **(A)** *Reading/Natural Science/Textual Evidence.* **SAT Topic: INFID.2.** Lines 3–4, (A), is the only choice that discusses some of the positive effects of the use of screen-based technologies, so it is the correct answer.

24. **(B)** *Reading/Natural Science/Implied Idea.* **SAT Topic: INFID.1b.** In the last two paragraphs of Passage 1 (lines 23–50), the author discusses some of the negative effects Internet use has on our brains. Specifically, he cites psychologist Patricia Greenfield's study, which found that Internet use has increased the "development of visual-spatial skills" at the expense of our "deep processing" abilities, such as "mindful knowledge acquisition, inductive analysis, [and] critical thinking" (lines 34–38). So, according to the author, becoming proficient at Internet use will weaken our ability to think deeply, (B). None of the other choices are supported: the author never discusses people's attitude toward their own health, (A); whether using the Internet will increase people's social networks, (C); or how using the Internet affects people's self-confidence, (D).

25. **(C)** *Reading/Natural Science/Vocabulary.* **SAT Topic: SUM.2.** The author states that the human brain is "highly plastic," which means that it can change or adapt as its circumstances change. The correct answer will be a word similar to "change" or "adapt." "Malleable," (C), is a good choice.

26. **(B)** *Reading/Natural Science/Implied Idea*. **SAT Topic: INFID.1b.** The example of Woody Allen reading *War and Peace* serves primarily to illustrate the author of Passage 2's point that "experience does not revamp the basic information-processing capacities of the brain" (lines 60–61). Simply speed-reading, or being able to speed-read, a novel did not suddenly make Woody Allen able to understand it. (B) best echoes this idea. None of the other choices are supported by the passage: the author gives no indication of whether Woody Allen liked Tolstoy's writing style, (A); if he was good at multitasking, (C); or if he regretted reading the novel, (D).

27. **(D)** *Reading/Natural Science/Explicit Detail*. **SAT Topic: INFID.1a.** Novelists and scientists are mentioned at the end of the third paragraph of Passage 2 (lines 70–80) as examples of people who become experts in their fields by immersing themselves, or becoming absorbed, in their own fields, (D). As for the other choices, (A) is incorrect because the author never mentions risks that novelists and scientists take when they pursue knowledge, only that they are pursuing it. (B) is incorrect because the eagerness to improve is not mentioned as a common factor. And (C) is incorrect because we know nothing about whether novelists and scientists are curious about other subjects. The author only mentions that they become immersed in their own subject.

28. **(D)** *Reading/Natural Science/Development*. **SAT Topic: SUM.1.** In the final sentence of Passage 2 (lines 85–90), the author states that those who believe consuming electronic media will turn our brains into what they are consuming are as misguided as those ancient peoples who believed that eating fierce animals would make them fierce. He is critical of that view and those who espouse it, so (D) is the best choice. (A) is incorrect because the final sentence does not use ornate language, and the concept illustrated is not a difficult one. And while the idea of your brain turning into "quick cuts" or your thoughts into "bullet points and online postings" is somewhat humorous, the opinion the author offers is not severe, so (B) is also incorrect. (C) is incorrect because while the final sentence talks about ancient people eating fierce animals because they believed they would become fierce, that is not intended to evoke a nostalgic response. Nothing in the comparison speaks of a yearning to return to ancient times.

29. **(D)** *Reading/Natural Science/Main Idea*. **SAT Topic: INFID.3.** One way to answer this item is to compare the first words of each answer choice to see which best fits the main purpose of the passages.

    (A): Do the passages compare brain function? Not really. Brain function is addressed, but a comparison of the brain function of those who play games on the Internet and those who only browse is not discussed.
    (B): Do the passages report on problem-solving skills? Yes, but only briefly. That is certainly not the main purpose of either passage.
    (C): Do the passages take a position? Yes, but a reading of the rest of (C) labels it as an incorrect answer. There is no discussion in either passage of financial support for technology-related studies.

    By POE, then, (D) must be the correct answer. A quick reading of the answer choice confirms that this is correct: both passages argue about how electronic media use affects the brain.

30. **(B)** *Reading/Natural Science/Main Idea*. **SAT Topic: SYN.1.** Passage 1 presents an argument about the effects of electronic media use (using too much electronic media will prevent our brain from exercising the neurons responsible for deeper reading and thinking), and Passage 2 criticizes this view (the panic around the effects of electronic media use is excessive; the effects are "likely to be far more limited" than what is implied). (B), then, is the best answer for this relationship between the two passages. As for the other choices, (A) is incorrect because Passage 2 never relates first-hand experiences. (C) is incorrect because both passages examine their results at about the same level; neither is more in-depth than the other. And (D) is incorrect because Passage 1, not Passage 2, reports negative reactions from electronic media use.

31. **(C)** *Reading/Natural Science/Application*. **SAT Topic: INFID.1c.** Use POE to answer this item. To eliminate answer choices, remember that both authors would likely agree with the correct answer choice.

Therefore, if students can determine that one of the authors would *disagree* with an answer choice, that answer has to be wrong. As for (A), improved hand-eye coordination with more computer use is a point brought up in Passage 1 (lines 5–6), but the author of Passage 2 never addresses it. It cannot be determined, therefore, *what* the author of Passage 2 would think, so (A) is probably wrong. As for (B), the author of Passage 2 states that the "effects of consuming electronic media are likely to be far more limited than the panic implies" (lines 81–82), which means that he would most likely agree with (B). However, the last two paragraphs of Passage 1 (lines 23–50) go into some detail about the negative effects of electronic media use, so that author would probably disagree with (B). (B), then, can be eliminated. As for (C), one of the benefits of electronic media use mentioned in Passage 1 is a quote by Patricia Greenfield (lines 25–38), who states that an increased development in visual-spatial skills goes along with a weakening in our deeper processing capacities. So the author of Passage 1 would probably agree with (C). And one of the main points of Passage 2 is that doing something (such as using technology) consistently and becoming good at it is an experience limited to that skill (lines 70–74). So the author of Passage 2 would probably agree with (C), making (C) the correct answer. If you wanted to check (D) just to make sure: preferring reading books to reading online text is not an idea mentioned in either passage. Yes, Passage 2 mentions Woody Allen and speed-reading as an example of how experience does not alter the deeper processing capacities of the brain, but that doesn't mean the author of Passage 2 would agree with (D).

32. **(B)** *Reading/Natural Science/Textual Evidence*. **SAT Topic: INFID.2.** The quote by Michael Merzenich (lines 41–43), a neuroplasticity expert, essentially says that using something new (e.g., a new medium) means that our brains will change into something new. Lines 54–56 of Passage 2, (B), provide the best evidence that the author of Passage 2 agrees in part with the Michael Merzenich claim. All of the other answer choices go against the idea that experience changes the brain.

33. **(B)** *Reading/Social Studies/Main Idea*. **SAT Topic: INFID.3.** One of the key ideas of Elizabeth Cady Stanton's speech, an idea she addresses multiple times, is that women, who have previously been overpowered (line 17) or forced to be as much like men as possible (line 43), need to be able to exert more influence, to use their feminine characteristics to fight against some of the destruction that unchecked masculinity has created in society. Thus, (B) is the correct answer. The lack of educational opportunities for women, (A), is not an idea that is discussed in the passage. As for (C), students may be familiar with Stanton's role in the suffrage of women (and, indeed, the passage is part of an address given in a convention for women's suffrage), but the lack of suffrage is only a minor part of this passage, so (C) is also incorrect. And as for (D), women being blocked from serving in government positions is not an idea addressed in this passage.

34. **(A)** *Reading/Social Studies/Vocabulary*. **SAT Topic: SUM.2.** At the beginning of the second paragraph, Stanton uses the phrase "high carnival" (line 15) to refer to something men have held. She then goes on to describe the male element as "run[ning] riot" (line 16), "overpowering" (line 17) the feminine, "crushing out" (line 18) divine qualities, until she says almost nothing is known of true womanhood. The correct answer to this item would be one that echoes the ideas of overpowering and crushing. "Utter domination," (A), fits that nicely. (B) is incorrect because nothing in the passage suggests that Stanton sees the current age as freewheeling. (C) is incorrect because while Stanton says that women can help raise society's moral values, that is not addressed in the paragraph where "high carnival" is used. Finally, (D) is incorrect because the whole point of the passage is that women do not have power, not that their power is growing.

35. **(D)** *Reading/Social Studies/Explicit Detail*. **SAT Topic: INFID.1a.** (A), (B), and (C) have all characterized society, as Stanton sees it, "for the centuries" (line 12). Only (D), the acknowledgement of women and their true character, is a relatively recent development (lines 19–22).

36. **(B)** *Reading/Social Studies/Textual Evidence*. **SAT Topic: INFID.2.** As mentioned in the previous explanation, the acknowledgment of the true character of women as a relatively recent development is mentioned in lines 20–22, (B). None of the other choices provide the necessary evidence.

37. **(B)** *Reading/Social Studies/Vocabulary*. **SAT Topic: SUM.2.** Stanton doesn't just mention a "rule" in the passage; she mentions a "hard iron rule" (lines 23–24). Thus, the correct answer will reflect an idea of something that is unflinching and negative. (A), (C), and (D) can all be eliminated because they lack the harsh connotation of "hard iron." (B) is the correct answer.

38. **(D)** *Reading/Social Studies/Vocabulary*. **SAT Topic: SUM.2.** At the beginning of the third paragraph (line 31), Stanton states that people object to "those whom they . . . call the strong-minded" (lines 31–32). The use of "object" suggests that "strong-minded" is not a compliment, so we are looking for an answer choice that is not positive. The first words of the answer choices can be used in this item to find the correct answer. The first word of (A) is "praise," which is definitely positive, so (A) can be eliminated. The first word of (B) is "identify," which is neither positive nor negative. No strong feelings either way means (B) can probably be eliminated, too. Both "criticize," (C), and "condemn," (D), are negative, so the rest of these two answer choices need to be looked at. (C) discusses women entering male-dominated professions, and that is not an idea that is brought up in the passage at all, so (C) can be eliminated. That leaves (D), which is the correct answer.

39. **(C)** *Reading/Social Studies/Vocabulary*. **SAT Topic: SUM.2.** Plugging in each answer choice into the sentence in question would probably be a good way to start solving this item:

    (A): we have few women in the *superior* sense; we have simply so many reflections . . . of the masculine gender.
    (B): we have few women in the *excellent* sense; we have simply so many reflections . . . of the masculine gender.
    (C): we have few women in the *genuine* sense; we have simply so many reflections . . . of the masculine gender.
    (D): we have few women in the *rarest* sense; we have simply so many reflections . . . of the masculine gender.

    Of these, (A) and (B) do not make sense in context. Stanton is talking about having too few examples of true womanhood; instead, society is inundated by various reflections of masculinity. Neither "superior," (A), nor "excellent," (B), fit that bill. That leaves (C) and (D), and they require a little closer reading to choose between the two. "Rarest," (D), could make sense; after all, if you have too many of one thing and not enough of the other, the other thing would be bound to be rare, right? However, a closer reading makes "genuine," (C), a better choice. Stanton's comment about having "so many reflections . . . of the masculine gender" means that the finding of true, authentic, *genuine* women is hard. Women are so caught up in trying to survive by being like men that they are not being true to their femininity. Thus, (C) is the correct answer.

40. **(A)** *Reading/Social Studies/Implied Idea*. **SAT Topic: INFID.1a.** In lines 53–56, Stanton discusses the fact that men are now viewing the consequences of their "falsehood, selfishness, and violence" with bitterness and regret. (A) best reflects this new view of men toward their situation. None of the other choices are mentioned as something men are doing now that their eyes are opening to the direness of the world's situation.

41. **(B)** *Reading/Social Studies/Textual Evidence*. **SAT Topic: INFID.2.** The previous item cites lines 53–56 as discussing what men are beginning to do now upon viewing their dire situation, so the correct answer is (B).

42. **(D)** *Reading/Social Studies/Main Idea*. **SAT Topic: RHET.4.** Stanton begins the sixth paragraph (lines 67–68) by stating that she doesn't believe all men are "hard, selfish, and brutal." However, she continues by saying that many masculine characteristics (those that "distinguish what is called the stronger sex"), while beneficial when being used on nature, are destructive when used to conquer women or other nations. So Stanton is contrasting men and masculine traits, (D). She is not contrasting men and women, (A); the spiritual world and material world, (B); or bad and good men, (C).

43. **(C)** *Reading/Natural Science/Development*. **SAT Topic: RHET.4.** In the first paragraph, the author briefly describes underwater ocean waves and then explains their significance: they circulate hot and cold water within the ocean depths. (C) best articulates this purpose. As for the other choices, a scientific device is never mentioned in the first paragraph, (A); no misconception is noted or corrected, (B); and a study is not mentioned until later in the passage, (D).

44. **(B)** *Reading/Natural Science/Vocabulary*. **SAT Topic: SUM.2.** When the author quotes Tom Peacock (lines 14–28) as wanting to "capture" (line 19) something, the thing that Peacock wants to capture is the process of ocean mixing and how underwater waves relate to that process in order to create more accurate climate models. Since underwater waves are a natural phenomenon, they are not something that humans can control, (A). Neither are they something that researchers can secure, (C), or absorb, (D). So the correct answer, through POE, is record, (B), and that answer fits best into the sentence: "If we want to have more and more accurate climate models, we have to be able to *record* processes such as this" (lines 15–19).

45. **(D)** *Reading/Natural Science/Explicit Detail*. **SAT Topic: INFID.1a.** Since this item uses the phrase "According to Peacock," the correct answer will be either a quote or something attributable to Peacock. And in the second paragraph (lines 12–19), we find such a quote; he says that recording and understanding internal waves is "crucial to global climate modeling" (line 14) in order to have more accurate climate models. This idea is best reflected by (D). As for the other choices, although Peacock mentions the extreme height of some of these waves, that is just a side detail, not the most significant reason he wants to study these waves, (A) is incorrect. As for (B), satellite imagery is discussed briefly in the first paragraph, but that is also not a significant reason for studying internal waves. And as for (C), coastal damage is never an idea addressed in the passage.

46. **(C)** *Reading/Natural Science/Textual Evidence*. **SAT Topic: INFID.2.** As mentioned in the previous item, the correct answer will be something attributable to Peacock. And the quote found in the second paragraph (in lines 17–19) provides the best evidence for the previous item, (C).

47. **(A)** *Reading/Natural Science/Vocabulary*. **SAT Topic: SUM.2**. In the context in which "devise" (line 65) is used, the author is discussing the fact that researchers were able to use the resin model of the Luzon Strait they built to *create* a corresponding mathematical model that described how the internal waves were formed and moved. "Create," (A), is the best answer. As for the other choices, (B) is incorrect because the kind of mathematical model mentioned here is not one scientists solve. (C) is incorrect because the scientists didn't simply imagine the model, they actually built it. And (D) is incorrect because the mathematical model was completed, not just begun and then never finished.

48. **(B)** *Reading/Natural Science/Implied Idea*. **SAT Topic: INFID.1b.** The example provided in the passage is that of researchers building a model of the Luzon Strait in order to study the effects of underwater waves. Then the researchers used the resin model to build a mathematical model to describe the waves. However, in lines 67–68, the author says that this mathematical model is "specific to the Luzon Strait" (though it can be used to help understand underwater waves across the world). (B) best reflects this idea. As for the other choices, (A) is inferring too much from the passage. Though the author does mention the height of the Luzon Strait waves and the fact that waves in general can reach colossal heights, he never says anything that would imply all waves reach those heights. As for (C), though the tide is mentioned as having an effect on the waves created around the Luzon Strait, this cannot necessarily be extrapolated to all internal waves since the Luzon Strait is only one internal wave example. (D) directly contradicts the passage. The Luzon Strait is mentioned as having a "distinct double-ridge shape" (line 54) underwater, not a flat section of ocean floor, that helps create the internal waves. Thus, not *all* internal waves are created by a flat ocean floor (though it is possible some are).

49. **(D)** *Reading/Natural Science/Textual Evidence*. **SAT Topic: INFID.2.** It was mentioned in the previous item that lines 67–68 state that the mathematical model built was specific to the Luzon Strait. That

means that (D) is the correct answer. None of the other choices provide good evidence for the previous item.

50. **(D)** *Reading/Natural Science/Data Presentations*. **SAT Topic: SYN.2.** We know from the item stem that we will be looking at what the lines do in a specific portion of the graph, from 19:12 to 20:24. And which is the only line that increases in depth from 19:12 to 20:24? The 13°C line, (D). All of the other lines decrease in depth.

> **TIP** Make sure to tell students that they need to read any graphs or data presentations carefully or they could get the wrong answer. For example, in this item, 0 (or surface level) is at the top, not the bottom, of the graph. So some students may think that because the 13°C isotherm line goes down between 19:12 and 20:24, it is decreasing in depth when the reverse is actually true.

51. **(D)** *Reading/Natural Science/Data Presentations*. **SAT Topic: SYN.2.** One of the key features of internal waves is that they never break the ocean's surface. This point is discussed in the first paragraph of the passage and confirmed by the graph; none of the lines of the graph ever rise to or above 0 on the y-axis. So (D) is the correct answer. As for the other choices, both (A) and (B) are incorrect because the salinity and density of the water, though mentioned in the passage, are not dealt with at all in the graph, which only covers the water's temperature and depth over time. As for (C), if the lines denoting each isotherm crossed at all, that would indicate that the bands of hotter and colder water would be pushed into each other. However, the lines never cross, and so (C) is also incorrect.

52. **(A)** *Reading/Natural Science/Data Presentations*. **SAT Topic: SYN.2.** In the first paragraph of the passage, the author states that underwater waves are essential to the water dynamics of the ocean since the waves take warmer water from higher levels of the ocean and force it down to the depths of the ocean, and bring up cold water from deep in the ocean to those higher levels. The graph confirms this: for example, at about 60 meters the temperature ranges from 10°C (7:12) to 11°C (12:00) to 13°C (13:12). The warmer water is being pushed down to depths that are usually colder, (A). (B) is incorrect because the density of layers of cold water is not addressed at all in the graph. As for (C), one of the defining features of internal waves is that they "do not ride the ocean surface" (lines 3–4). The graph confirms this; the water's surface temperature remains unchanged despite the presence of internal waves. Thus, (C) is also incorrect. Finally, as for (D), the graph never notes when tides occur (or when they have been disrupted).

Writing and Language

1. **(B)** *Writing and Language/Standard English Conventions/Usage/Nouns.* **SAT Topic: SEC.2c.iii.** For the sentence to be grammatically correct, the underlined word needs to be a noun, so (A), (C), and (D) can all be eliminated as they each provide a verb or gerund. The only choice that correctly uses a noun as the direct object of the sentence is (B).

2. **(B)** *Writing and Language/Expression of Ideas/Development/Proposition.* **SAT Topic: EXPID.1a.** The correct answer is (B) because it is the only transition word that properly connects the idea in this sentence with the idea that precedes it. Because there have been budget cuts, many people have been laid off; (B) correctly introduces this consequence of the budget reductions. (A) and (C) are incorrect because they both signal a contrasting idea and nothing is being contrasted in these sentences, and (D) is incorrect because it doesn't preserve the logical order of the ideas—people weren't laid off before the budget reductions.

3. **(A)** *Writing and Language/Standard English Conventions/Subject-Verb Agreement/No Change.* **SAT Topic: SEC.2c.ii.** The subject of the sentence is "trend," which is singular, so the verb also needs to be singular. (B) and (C) are incorrect because the plural verb "have" doesn't agree with the singular subject. (D) is incorrect because the inclusion of the conjunction "which" turns the main clause of the sentence into a dependent clause, creating a sentence fragment. (A) is correct because the singular verb "has" agrees with the subject "trend."

4. **(A)** *Writing and Language/Expression of Ideas/Development/Support.* **SAT Topic: EXPID.1b.** The material the author wants to add includes examples of non-print publications, and the next clause of the sentence specifically talks about one of those examples—e-books. The correct answer is (A). (B) is incorrect because there is no "increase" referred to later in the sentence. (C) is incorrect because the ideas are clearly related, and (D) is incorrect because electronic publications are directly connected to librarians later in the paragraph.

5. **(D)** *Writing and Language/Standard English Conventions/Usage/Pronoun Clarity.* **SAT Topic: SEC.2a.i.** The only answer choice that does not contain an ambiguous pronoun is (D). (A), (B), and (C) are all incorrect because it's not clear who "their" or "them" refers to.

6. **(D)** *Writing and Language/Standard English Conventions/Sentence Structure/Parallel Structure.* **SAT Topic: SEC.1a.iii.** Items in a series must all use the same grammatical form, so the underlined word must agree with the two other items in this series, "compiling" and "updating." (D) is the correct choice. None of the other choices preserve the parallel structure of the sentence.

7. **(B)** *Writing and Language/Expression of Ideas/Effective Language Use/Concision.* **SAT Topic: EXPID.3b.** The correct answer is (B) because this option concisely combines the ideas of both sentences. The pronoun "whose" correctly modifies librarians and upholds the meaning and grammatical structure of the sentence. (A) is incorrect for a couple of reasons. The subject "librarians" is needlessly repeated at the beginning of each independent clause and the passive structure "is taught by them" at the end of the sentence is also awkward. (C) is incorrect because the order of the clauses doesn't make it clear what "training" refers to, and (D) is incorrect because there is no connection to what is being "included."

8. **(D)** *Writing and Language/Standard English Conventions/Usage/Problems of Subordination and Coordination.* **SAT Topic: SEC.1a.ii.** The correct answer is (D) because it is the only choice that results in a grammatically correct sentence. The first clause of this sentence is a dependent clause, and all dependent clauses have to be connected to an independent clause to stand alone as a sentence. (A), (B), and (C) all introduce conjunctions that make the second clause also dependent. In addition, look at the meaning of the sentence. Because of the inclusion of "while," no other conjunction is needed to express the contrast between "young students" and "adult patrons."

9. **(B)** *Writing and Language/Expression of Ideas/Organization/Transitions.* **SAT Topic: EXPID.2b.** The correct answer is (B) because it correctly sets up the time periods when the free services mentioned later in the sentence are useful to patrons. (A) is incorrect because it simply reiterates the fact that libraries are free, a fact that is repeated later in the sentence. (C) is incorrect because the ideas in this paragraph are, in fact, measuring the value of libraries and librarians, and (D) is incorrect because, like (A), it repeats ideas given later in the sentence.

10. **(B)** *Writing and Language/Expression of Ideas/Effective Language Use/Tone.* **SAT Topic: EXPID.3c.** The original wording is too informal for the passage. "Legal issues," (B), is a more appropriate term to use in this passage. (C) and (D) are incorrect because both are needlessly wordy, especially compared to (B).

11. **(C)** *Writing and Language/Expression of Ideas/Organization/Conclusions.* **SAT Topic: EXPID. 2b.** The correct answer is (C) because it is the only choice that effectively sums up the argument in the passage. (A) is incorrect it provides two vague and disconnected ideas that do not summarize the passage's argument about the value of librarians. (B) is incorrect because the passage demonstrates that librarians' roles have become more diverse, not that they have diminished, and (D) is incorrect because other employment opportunities for librarians are never discussed.

12. **(B)** *Writing and Language/Expression of Ideas/Development/Proposition.* **SAT Topic: EXPID.1a.** The correct answer is (B) because it is the only choice that correctly connects the ideas in the first two sentences; the painting mentioned in the second sentence is an example or "instance" of the "famous large paintings" mentioned in the first sentence. (A) and (C) are incorrect because "On one hand" and "However" both signal contrast and nothing is being contrasted at this point in the passage. (D) is incorrect because the ideas in this part of the passage are not "similar" to each other.

13. **(D)** *Writing and Language/Standard English Conventions/Punctuation/Commas.* **SAT Topic: SEC.3b.** In this sentence, "Georges Seurat" is an appositive explaining "painter." Because the painter's name is essential information and cannot be eliminated without losing the meaning of the sentence, it should not be set off by commas. (A), (B), and (C) all contain commas, so (D) is the correct answer. In addition, note that in this sentence "Georges Seurat's" (unlike "painter") carries a possessive, which is essential to the grammar of the sentence. Both "painter" and "Georges Seurat's" are essential to the grammatical integrity of this sentence, so neither should be set off by commas.

TIP A good way to figure out where commas need to be in sentences that contain appositives is to look for a whole phrase that can be removed without changing the sentence's meaning or disrupting its grammar. For example, in this question, if you remove "George Seurat's" the sentence is no longer grammatically correct: "I couldn't wait to view painter 10-foot-wide…." Because the section in commas is imperative to the meaning of the sentence, no commas are necessary in this sentence.

14. **(C)** *Writing and Language/Standard English Conventions/Punctuation/Colons.* **SAT Topic: SEC. 3b.** The pronoun in this sentence is possessive, so both (A) and (D) can be eliminated because "it's" is a contraction for "it is" and does not show possession. (B) is incorrect because a semicolon is used to separate two independent clauses and "the Thorne Miniature Rooms" is not an independent clause. (C) is the best answer because it properly introduces what the author's favorite exhibit is with a colon and uses the appropriate possessive pronoun.

15. **(C)** *Writing and Language/Expression of Ideas/Development/Support.* **SAT Topic: EXPID. 1b.** The purpose of the paragraph is to describe the miniature salon, and the proposed sentence introduces unrelated historical commentary. Both (A) and (B) can be eliminated since they indicate that the sentence should be added. (D) gives an incorrect reason for not adding the sentence: attributing political views to the salon designer when the paragraph contains no support for doing so. (C) is the correct answer. The sentence should not be added because it disrupts the purpose and flow of the paragraph.

16. **(C)** *Writing and Language/Expression of Ideas/Effective Language Use/Concision.* **SAT Topic: EXPID.3b.** The correct answer is (C) because it is the only choice that both eliminates redundancy and upholds the

grammatical structure of the sentence. (A) and (B) are both incorrect because the repetition of the subjects—couch and chairs—is redundant, and (D) is incorrect because the lack of the conjunction "and" makes it unclear what is covered in velvet—the couch and chairs, or the legs.

17. **(B)** *Writing and Language/Expression of Ideas/Development/Support*. **SAT Topic: EXPID.1b.** The only answer choice that provides an additional example demonstrating the measurement scale given is (B). (A) is incorrect because it is an extension of the first example, not an additional one, (C) is incorrect because it doesn't relate to measurement, and (D) is incorrect because it doesn't provide the measurement needed to support the example.

18. **(B)** *Writing and Language/Expression of Ideas/Development/Proposition.* **SAT Topic: EXPID. 1a.** This paragraph comes right after a description of an elaborately decorated room, so even though the furniture may be sparse in the description of the other room, we know from the previous example that "true to the time" means anything but sparse. Some kind of contrasting word is needed to indicate this relationship, so both (A) and (C) can be eliminated. (D) is incorrect because the pronoun "their" is needed to make it clear what "features, furnishings, and decorations" are being referred to. (B) is the only answer choice that draws the appropriate contrast and includes the necessary pronoun.

19. **(A)** *Writing and Language/Expression of Ideas/Effective Language Use/Style.* **SAT Topic: EXPID.3c.** The sentence describes where three items are in the kitchen, and in two of those descriptions the item is given first, then its location; therefore, the third item also needs to follow that order. (A) most closely follows this pattern. (B), (C), and (D) do not follow that style and thus do not retain the parallel structure of the sentence.

20. **(D)** *Writing and Language/Standard English Conventions/Sentence Structure/Verb Tense/Pronoun Number.* **SAT Topic: SEC: 1b.i. SEC.1b.ii.** The correct answer is (D) because it stays in the correct tense and uses the appropriate singular noun. (A) is incorrect because the apostrophe after the "s" in visitors makes it plural, but the article "a" that precedes "visitor" makes it clear that only one visitor made a remark. (B) is incorrect for the same reason, and (C) is incorrect because the past tense verb "remarked" does not keep with the tense of the passage.

21. **(D)** *Writing and Language/Standard English Conventions/Sentence Structure/Modifier Placement.* **SAT Topic: SEC.1a.iv.** The only answer choice that correctly describes the desk, not the visitor, as being "dotted with pin-sized knobs" is (D). (A), (B), and (C) all result in misplaced modifiers.

22. **(B)** *Writing and Language/Expression of Ideas/Development/Logical Sequence.* **SAT Topic: EXPID.2a.** The current placement of paragraph 2 interrupts the logical flow of the passage. Paragraph 3 gives a general description of the exhibit itself, but paragraphs 2 and 4 describe specific aspects of the rooms. The most logical move is to put paragraph 2 after paragraph 3, (B). The first sentence of paragraph 2 describes the writer's reaction on first viewing the exhibit and its ornate rooms, and paragraph 4 continues the writer's description of the exhibit with details about the plainer rooms. (C) is wrong because switching paragraphs 2 and 4 results in a disjointed passage with inappropriate transitional sentences. (D) is wrong because it places one of the main body paragraphs after the concluding paragraph.

23. **(A)** *Writing and Language/Standard English Conventions/Sentence Structure/Sentence Boundaries/No Change.* **SAT Topic: SEC.1a.i.** The only answer choice that upholds the grammatical structure of the sentence is (A). (B) is incorrect because the use of "they" would create a comma splice, and both (C) and (D) are incorrect because they result in sentence fragments.

24. **(B)** *Writing and Language/Expression of Ideas/Development/Quantitative Information.* **SAT Topic: EXPID.1d.** The correct answer is (B) because it accurately represents the information in the graph: in less than two years the presence of sea otters can reduce the sea urchin threat. (A) is incorrect because the graph clearly shows that sea urchins were still present when sea otters had been in the area two years or less. (C) is incorrect because the graph shows that kelp density increased as sea urchin density

decreased, not increased, and (D) is incorrect because the graph shows that kelp density was at its highest in the ten year range, while sea urchins had been completely eliminated.

25. **(B)** *Writing and Language/Expression of Ideas/Development/Proposition.* **SAT Topic: EXPID.1a.** The previous sentence gave a benefit of the presence of sea otters, and this sentence introduces a drawback to the lack of otters. The only answer choice that uses a transition word to introduce this kind of contrasting idea is (B). (A) is incorrect because "nevertheless" indicates some type of conclusion and no conclusion is being made at this point of the passage, (C) is incorrect because "hence" means "for this reason" and the absence of sea otters is not a reason for the previous information, and (D) is incorrect because "likewise" means "in the same way" and this sentence is introducing a drawback, which is not the same thing as a benefit.

26. **(A)** *Writing and Language/Expression of Ideas/Development/Support.* **SAT Topic: EXPID.1b.** More information is needed in this sentence to understand why the levels of carbon dioxide are being given, so (C) and (D) can quickly be eliminated. (B) is incorrect because no mention has yet been made of how sea otters, sea urchins, and kelp help combat global warming. Only (A) correctly adds the right information to give context about how carbon dioxide levels fit into the information given thus far.

27. **(D)** *Writing and Language/Standard English Conventions/Punctuation.* **SAT Topic: SEC.3f.** The only answer that upholds the grammatical structure of the sentence by not introducing unnecessary punctuation is (D). (A), (B), and (C) all use punctuation that separates the verb from its object.

TIP "That" is never preceded by any type of punctuation, because "that" introduces a restrictive clause which does not require commas.

28. **(A)** *Writing and Language/Expression of Ideas/Effective Language Use/Precision/No Change.* **SAT Topic: EXPID.3a.** The best answer is (A) because it most accurately describes the behavior of the sea urchins. The first paragraph states that sea urchins "graze voraciously on kelp." The passage gives no context to support the use of the terms in (B), (C), or (D).

29. **(C)** *Writing and Language/Standard English Conventions/Usage/Pronoun-Antecedent Agreement.* **SAT Topic: SEC.2c.i.** A pronoun must always agree with its antecedent, and in this case the antecedent is "kelp"—a singular noun—so (A) can be eliminated. (B) is incorrect for the same reason and because it is not a possessive pronoun but a contraction for "they are." (D) is incorrect because the apostrophe in "it's" makes it a contraction for "it is." Only (C) correctly uses a singular, possessive pronoun.

TIP With nouns like "kelp" that make it difficult to determine whether the noun is singular or plural, look at the word that precedes it. If "a," "an," or "the" precede the noun, it is a singular noun as these words indicate "one."

30. **(C)** *Writing and Language/Standard English Conventions/Usage/Pronoun Clarity.* **SAT Topic: SEC.2a.i.** The use of a pronoun in this sentence obscures the meaning because it's not clear what or who the pronoun is referring to. The only answer choice that correctly introduces a clear subject without the use of a pronoun is (C).

31. **(D)** *Writing and Language/Expression of Ideas/Development/Logical Sequence.* **SAT Topic: EXPID: 2a.** Sentence 5 says that scientists did not recognize the role otters played in the decrease of carbon dioxide in the atmosphere. The sentence to be added lets the reader know that a surprise is coming, and sentence 6 reveals the surprise: otters increase the carbon storage of kelp forests by a huge degree. Logically, the sentence to be added is a perfect bridge between sentences 5 and 6, (D). (A) can be eliminated because Wilmers and Estes aren't mentioned until sentence 3, and it would be confusing to refer to them before that point. (B) and (C) are incorrect because sentences 4 and 5, which would follow the insertion, don't offer any elaboration on the surprising result of the study.

32. **(B)** *Writing and Language/Expression of Ideas/Effective Language Use/Tone*. **SAT Topic: EXPID.3c.** The correct answer is (B) because it keeps with the formal tone of the passage. (A) is incorrect because "having more otters" is informal, and (C) and (D) are incorrect because there is no mention in the passage of otters multiplying or of some locations having more otters than other locations.

33. **(D)** *Writing and Language/Standard English Conventions/Punctuation/Commas.* **SAT Topic: SEC.3b.** Choice (D) is the correct answer because it renames, or provides a definition for, "sequestered" with the proper punctuation. (A) is incorrect because two commas should be used to set off the definition, not a comma and a semicolon. (B) is incorrect because "from" should not be included in the definition that is set off from the rest of the sentence. (C) makes the same mistake as (B) and also adds another unnecessary comma.

34. **(D)** *Writing and Language/Standard English Conventions/Usage/Conventional Expression.* **SAT Topic: SEC.2f.** The only choice that uses the correct conjunction to show the relationship between the practice and what that practice involves is (D). (A) and (B) are incorrect because the practice doesn't involve "at" or "from" the practice itself, and (C) is incorrect because "so that" indicates a reason, and no reason is being given.

35. **(A)** *Writing and Language/Standard English Conventions/Punctuation/Commas/No Change.* **SAT Topic: SEC.3b.** The only answer choice that preserves the grammatical structure of the sentence is (A). The description of "obsolescence" is an appositive because it defines what obsolescence is, and appositive phrases are set off by commas, (A). (B) and (C) are incorrect because they use the wrong punctuation marks at the end of the appositive, and (D) is wrong because it uses no punctuation at all.

36. **(D)** *Writing and Language/Expression of Ideas/Effective Language Use/Precision.* **SAT Topic: EXPID.3a.** This question tests your vocabulary. "Austere" means "simple" or "plain;" "egregious" means "remarkably bad;" and "unmitigated" means "complete and total"—none of which convey the meaning of the sentence, so (A), (B), and (C) are all incorrect. The correct answer is (D); the author intends to show an "obvious" contrast and "stark," which means "very plain and easily seen" is the best answer to convey that meaning.

    TIP On questions that test your vocabulary, use the words you know the meanings of first to see if they fit the context of the question being asked. This may save you time by helping you to eliminate wrong answers faster.

37. **(A)** *Writing and Language/Expression of Ideas/Development/Support.* **SAT Topic: EXPID. 1b.** The correct answer is (A) because it is the only answer choice that is connected to the ideas in this sentence and the passage thus far. Logically one can assume that repair shops are rare because they are often specialized—different products need different, or special types of repairs; (A) correctly makes this connection. (B), (C), and (D) are incorrect because they introduce ideas that have no logical connection to the ideas in the passage.

38. **(B)** *Writing and Language/Standard English Conventions/Usage/Frequently Confused Words.* **SAT Topic: SEC.2d.** "Then" is used to indicate a sequence, such as the next step or idea, not a comparison, so both (A) and (D) can be eliminated. The noun "fare" refers to the money a person pays to travel on some type of transportation, and a "fare" can't be compared to a "café" as it is in this sentence, so (C) is incorrect. Only (B) uses the correct form of each word—"fair" and "than"—to compare the Repair Café to an exhibition, or "fair."

    TIP "Than" and "then" are frequently confused. A good rule to remember is that "then" refers to time, and "than" is used to compare things or ideas.

39. **(C)** *Writing and Language/Standard English Conventions/Usage/Pronoun Clarity.* **SAT Topic: SEC.2a.i.** The underlined portion of the sentence is the beginning of a nonessential relative clause that gives more information about Martine Postma. (C) correctly structures the relative clause by providing the relative

pronoun "who" and the correct form of the verb. (A) is incorrect because it is missing the necessary pronoun to modify the noun of the sentence, (B) is incorrect because the use of "whom" does not uphold the grammatical structure of the sentence, and (D) is incorrect because the pronoun "she" does not appropriately connect the noun and the verb in the sentence.

40. **(D)** *Writing and Language/Expression of Ideas/Effective Language Use/Concision.* **SAT Topic: EXPID.3b.** This part of the sentence is introducing the journalist's list of goals, and the best punctuation tool to introduce a list is the colon, (D). (A). (B), and (C) all introduce unnecessary transition words that detract from the list.

41. **(D)** *Writing and Language/Standard English Conventions/Sentence Structure/Verb Tense.* **SAT Topic: SEC. 1b.i.** The phrases "await for" and "awaiting for" are not consistent with standard English conventions, so both (A) and (B) can be eliminated. (C) is incorrect because the past tense verb "waited" is inconsistent with the rest of the sentence, which is written in present tense. (A) and (C) are also incorrect because they fail to connect the preposition "for" with a gerund. Only (D) adheres to standard English conventions, preserves the present tense of the sentence, and appropriately uses the gerund "waiting" with the preposition "for."

42. **(C)** *Writing and Language/Expression of Ideas/Organization/Logical Sequence.* **SAT Topic: EXPID.2a.** The only answer that retains the logical structure of the ideas in this paragraph is (C). Sentence 5 describes the various places where Repair Cafés can be found today, so it makes the most logical sense to place this sentence after the sentence about the first repair shop's location, but before the sentence about current customers and how they use these cafés. (A) is incorrect because the current location of the sentence breaks up the description of how the Repair Café works. (B) is incorrect because it wouldn't make sense to give a detail about the location of the cafés before explaining what a Repair Café is. (D) is incorrect because it disrupts the chronological development of information about the Repair Cafés.

43. **(C)** *Writing and Language/Expression of Ideas/Development/Support.* **SAT Topic: EXPID. 1b.** This paragraph is focused on the benefits of Repair Cafés and introducing an idea about the type of jobs that have increased or decreased is not related to those benefits, so both (A) and (B) can be eliminated. (D) is also incorrect because although the sentence isn't necessary in this paragraph, it also doesn't contradict any of the claims given in it. (C) is the correct answer—the sentence is not necessary because it detracts from the main idea of the paragraph.

44. **(D)** *Writing and Language/Expression of Ideas/Effective Language Use/Concision.* **SAT Topic: EXPID.3b.** The phrase "and other countries" indicates that there are others that can be added to the list, so (A), (B), and (C) all introduce redundant phrases. The only answer that eliminates redundancy is (D).

Section 3 Math, No Calculator

1. **(C)** *Math: Multiple-Choice/Algebra/Solving Algebraic Equations or Inequalities with One Variable/Simple Equations.* **SAT Topic: ALG.1.** Since the expression in question contains the term $10x$, and the given equation contains the term $5x$, this should make you think of multiplying the equation by 2: $2(5x + 6 = 10) \Rightarrow 10x + 12 = 20$. To solve for $10x + 3$, subtract 9 from each side: $10x + 3 = 11$.

    Alternatively, solve for x: $5x + 6 = 10 \Rightarrow 5x = 4 \Rightarrow x = \dfrac{4}{5}$. Now plug x into the equation $10x + 3$:

    $10\left(\dfrac{4}{5}\right) + 3 = 8 + 3 = 11$.

2. **(B)** *Math: Multiple-Choice/Algebra/Solving Simultaneous Equations.* **SAT Topic: ALG.7.** To solve the system of simultaneous equations, use either the elimination method or the substitution method (graphing the equations isn't really a viable option). Using the elimination method, multiply the first equation by 2 and combine it with the second equation to eliminate the y-variable:

    $$\begin{aligned} 2(x + y &= 0) \\ + \quad 3x - 2y &= 10 \\ \hline 5x &= 10 \Rightarrow x = 2 \end{aligned}$$

    This is enough to solve this item: only (B) includes 2 as the x-value in the given ordered pair, $(2, -2)$.

3. **(A)** *Math: Multiple-Choice/Algebra/Creating, Solving, and Interpreting Algebraic Equations and Functions.* **SAT Topic: ALG.8.** Rewrite the expression for the price, P, in dollars, to include the known units: P dollars $= 60 + 12(n \text{ landscapers})(h \text{ hours})$. Now, fill in the unknown units necessary to leave each term with units of "dollars": P dollars $=$

    $60 \text{ dollars} + \dfrac{12 \text{ dollars}}{\text{landscapers - hours}}(n \text{ } \cancel{\text{landscapers}})(h \text{ } \cancel{\text{hours}})$. Therefore, the units for the 12 must be

    dollars per landscaper-hour. In other words, the company charges $12 per hour for each landscaper.

4. **(A)** *Math: Multiple-Choice/Algebra/Manipulating Algebraic Expressions/Factoring Expressions* and *Manipulating Expressions Involving Exponents.* **SAT Topic: PAM.4.** Any polynomial of the form $x^2 + 2xy + y^2$ is equal to $(x + y)^2$, as shown using the FOIL method for multiplying polynomials: $(x + y)(x + y) = x^2 + 2xy + y^2$. Therefore, $9a^4 + 12a^2b^2 + 4b^4 = (3a^2)^2 + 2(3a^2)(2b^2) + (2b^2)^2 = (3a^2 + 2b^2)^2$.

    Alternatively, simply carry out the operations indicated in the answer choices to determine which is equal to the expression given in the item stem. The correct choice is (A):

    A) $(3a^2 + 2b^2)^2 = (3a^2 + 2b^2)(3a^2 + 2b^2) = 9a^4 + 6a^2b^2 + 6a^2b^2 + 4b^4 = 9a^4 + 12a^2b^2 + 4b^4$

5. **(C)** *Math: Multiple-Choice/Algebra/Solving Algebraic Equations or Inequalities with One Variable/Equations Involving Radical Expressions.* **SAT Topic: PAM.7.** Substitute 7 for x in the given equation and solve for k: $\sqrt{2k^2 + 17} - x = 0 \Rightarrow \sqrt{2k^2 + 17} = 7 \Rightarrow 2k^2 + 17 = 49 \Rightarrow k = \pm\sqrt{\dfrac{49 - 17}{2}} = \pm 4$; since $k > 0$, $k = 4$, (C).

6. **(D)** *Math: Multiple-Choice/Coordinate Geometry/Slope of a Line.* **SAT Topic: ALG.9.** The two lines are parallel, so they have the same slope, $m = \dfrac{\text{rise}}{\text{run}} = \dfrac{\Delta y}{\Delta x}$. Using the given ordered pairs in the graph, set the two slopes equal to one another and solve for p: $\dfrac{\Delta y_l}{\Delta x_l} = \dfrac{\Delta y_k}{\Delta x_k} \Rightarrow \dfrac{2-0}{0--5} = \dfrac{0--4}{p-0} \Rightarrow \dfrac{2}{5} = \dfrac{4}{p} \Rightarrow p = \dfrac{4(5)}{2} = 10$.

7. **(A)** *Math: Multiple-Choice/Algebra/Manipulating Algebraic Expressions/Manipulating Expressions Involving Exponents* and *Factoring Expressions.* **SAT Topic: PAM.8.** According to the rules for working with exponents, $\dfrac{x^a}{x^b} = x^{a-b}$. Therefore, in the given equation $\dfrac{x^{a^2}}{x^{b^2}} = x^{16}$, $a^2 - b^2 = 16 \Rightarrow$

$(a+b)(a-b) = 16 \Rightarrow a-b = \dfrac{16}{a+b} = \dfrac{16}{2} = 8$.

8. **(C)** *Math: Multiple-Choice/Algebra/Solving Algebraic Equations or Inequalities with One Variable/Simple Inequalities.* **SAT Topic: ALG.6.** Solve the given equation for A: $nA = 360 \Rightarrow A = \dfrac{360}{n}$. And $A > 50$, so

$\dfrac{360}{n} > 50 \Rightarrow \dfrac{360}{50} > n \Rightarrow 7.2 > n$. (Note that we can transcribe n across the inequality without concern for changing its direction because n must be positive.) Since the number of sides must be a whole number, the greatest number n can be is 7.

9. **(B)** *Math: Multiple-Choice/Coordinate Geometry/Slope-Intercept Form of a Linear Equation.* **SAT Topic: ALG.9.** Determine the slope-intercept form of the lines: $y = mx + b$, where m is the slope and b is the y-intercept. The item stem gives the slope for the first line, so $y = 2x + b$. Substitute the ordered pair $(1,8)$ to determine b: $8 = 2(1) + b \Rightarrow b = 6$. Thus, the equation of the first line is $y = 2x + 6$. Next, determine the equation of the second line. To find the slope, use the two points through which the second line passes: $m = \dfrac{\text{rise}}{\text{run}} = \dfrac{\Delta y}{\Delta x} = \dfrac{1-2}{2-1} = -\dfrac{1}{1} = -1$. So, the equation of the second line is $y = -x + b$. Use one of the given ordered pairs for the second line to determine b: $2 = -1 + b \Rightarrow b = 3$, so the equation for the second line is $y = -x + 3$. To determine the point (a,b) at which the two lines intersect, solve the system of equations.

Since both expressions equal y, set them equal and solve for x: $2x + 6 = -x + 3 \Rightarrow 3x = 3 - 6 \Rightarrow x = -\dfrac{3}{3} = -1$.

Plug this value for x in either equation to determine the corresponding value of y: $y = 2x + 6 = 2(-1) + 6 = 4$. Therefore, $a + b = -1 + 4 = 3$.

10. **(C)** *Math: Multiple-Choice/Coordinate Geometry/Graphs of Quadratic Equations and Relations.* **SAT Topic: PAM.12.** To determine which equation for y makes the inequality $y \geq -1$ true, test each choice. As for (A), $|x| - 2 \overset{?}{\geq} -1 \Rightarrow |x| \overset{?}{\geq} 1$, which is NOT always true because $|x|$ can be any value greater than or equal to zero. As for (B), $x^2 - 2 \overset{?}{\geq} -1 \Rightarrow x^2 \overset{?}{\geq} 1$, which is NOT always true because x^2 can be any value greater than or equal to zero). As for (C), $(x-2)^2 \overset{?}{\geq} -1$, which is always true because the square of any number, positive or negative, is always greater than 0, which is greater than -1. This is enough to answer the item—(C) is the correct choice. Indeed, (D) is incorrect for the same reason as (B): $x^3 - 2 \overset{?}{\geq} -1 \Rightarrow x^3 \overset{?}{\geq} 1$, which is not always true because the cube of any negative number is always less than 0.

Alternatively, imagine the graphs for each choice. (A) is V-shaped graph with a minimum at (0,–2). Thus some values of $y < -1$. (B) is a parabola with minimum at (0,–2) with some values of $y < -1$. (C) is a parabola with a minimum at (–2,0) and thus all values of $y > -1$. For (D), most negative values of x give $y < -1$. So (C) is the correct choice.

11. **(C)** *Math: Multiple-Choice/Problem Solving and Advanced Arithmetic/Common Advanced Arithmetic Items/Complex Numbers.* **SAT Topic: ATM.3.** To rationalize the denominator of the expression, multiply the top and the bottom by the conjugate of the denominator, simplify, and substitute -1 for i^2:

$$\frac{(3-5i)(8-2i)}{(8+2i)(8-2i)} = \frac{24-6i-40i+10i^2}{64-16i+16i-4i^2} = \frac{24-46i+10(-1)}{64-4(-1)} = \frac{14-46i}{68} = \frac{7-23i}{34} = \frac{7}{34} - \frac{23i}{34}.$$

12. **(B)** *Math: Multiple-Choice/Algebra/Manipulating Algebraic Expressions/Basic Algebraic Manipulations.* **SAT Topic: PAM.14.** Solve the given equation for F: $R = \frac{F}{N+F} \Rightarrow F = R(N+F) = RN + RF \Rightarrow F - RF = RN \Rightarrow$

$$F(1-R) = RN \Rightarrow F = \frac{RN}{1-R}.$$

13. **(D)** *Math: Multiple-Choice/Algebra/Solving Quadratic Equations and Relations/Working with Roots.* **SAT Topic: PAM.5.** Simplify the equation by dividing by 2: $2m^2 - 16m + 8 = 0 \Rightarrow m^2 - 8m + 4 = 0$. The values of m that satisfy the equation are the roots of the quadratic equation, a and b, so factor the left side of the equation in terms of these roots: $m^2 - 8m + 4 = (m-a)(m-b) = m^2 - bm - am + ab = m^2 - m(b+a) + ab$. Since the coefficients of the terms on each side of the equality must be equal, $b + a = 8$.

Alternatively, you can find the roots of the quadratic equation by completing the square:
$m^2 - 8m + 4 = 0 \Rightarrow m^2 - 8m + 16 = 12 \Rightarrow (m-4)(m-4) = 12 \Rightarrow (m-4)^2 = 12 \Rightarrow m - 4 = \pm\sqrt{12} \Rightarrow$
$m = 4 \pm 2\sqrt{3}$. Therefore, the sum of the roots is $4 + 2\sqrt{3} + 4 - 2\sqrt{3} = 8$.

Finally, the roots of the quadratic equation can also be determined using the quadratic formula (for $ax^2 + bx + c = 0$, $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$). For $m^2 - 8m + 4 = 0$, $m = \frac{8 \pm \sqrt{64 - 4(4)}}{2} = 4 \pm \frac{\sqrt{48}}{2} = 4 \pm 2\sqrt{3}$ and, again, $4 + 2\sqrt{3} + 4 - 2\sqrt{3} = 8$.

14. **(A)** *Math: Multiple-Choice/Algebra/Creating, Solving, and Interpreting Algebraic Equations and Functions* and *Evaluating Sequences Involving Exponential Growth.* **SAT Topic: PAM.1.** Create a table to show how the amount of radioactive substance, f, decreases each year. Since it decays at an annual rate of 13%, the amount remaining each year is equal to 87% of the previous year's quantity:

t (years)	0	1	2	3
f (grams)	325	0.87(325)	0.87(0.87)(325)	0.87(0.87)(0.87)(325)

And so on—with each successive year, the power of 0.87 increases by one. The amount remaining can be written as a function of t and the initial amount, 325 grams: $f(t) = 325(0.87)^t$.

15. **(D)** *Math: Multiple-Choice/Algebra/Manipulating Algebraic Expressions/Basic Algebraic Manipulations* and *Evaluating Expressions.* **SAT Topic: PAM.9.** To divide the polynomial in the numerator by the polynomial in the denominator, use long division as you would with numbers:

$$\begin{array}{r} 5 \\ x+3\overline{)5x-2} \\ \underline{-5x-15} \\ -17 \end{array}$$

Therefore, $\dfrac{5x-2}{x+3} = 5 - \dfrac{17}{x+3}$.

TIP What if you forgot how to divide polynomials? Use the "Test-the-Test" strategy. Pick a value for x, say $x=1$, and evaluate the given expression: $\dfrac{5x-2}{x+3} = \dfrac{5(1)-2}{1+3} = \dfrac{3}{4}$. Evaluate each answer choice, substituting 1 for x in the expressions that include x—the correct choice will yield $\dfrac{3}{4}$:

A) $\dfrac{5-2}{3} = 1 \neq \dfrac{3}{4}$ ✘

B) $5 - \dfrac{2}{3} = 4\dfrac{1}{3} \neq \dfrac{3}{4}$ ✘

C) $5 - \dfrac{2}{x+3} = 5 - \dfrac{1}{2} = 4\dfrac{1}{2} \neq \dfrac{3}{4}$ ✘

D) $5 - \dfrac{17}{x+3} = 5 - \dfrac{17}{4} = 5 - 4\dfrac{1}{4} = \dfrac{3}{4}$ ✔

16. **(3, 6, 9)** *Math: Student-Produced Responses/Algebra/Creating, Solving, and Interpreting Algebraic Equations and Functions.* **SAT Topic: ALG.3.** Translate the given information into an equation, where a is the number of $250 bonuses and b is the number of $750 bonuses:

$\$3{,}000 = \dfrac{\$250}{\text{bonus}} \times a \cancel{\text{ bonuses}} + \dfrac{\$750}{\text{bonus}} \times b \cancel{\text{ bonuses}} \Rightarrow 3{,}000 = 250a + 750b \Rightarrow 12 = a + 3b \Rightarrow$

$a = 12 - 3b = 3(4-b)$. Since a and b must both be whole numbers, a is a multiple of 3. For $a=3$, $b = \dfrac{12-a}{3} = \dfrac{12-3}{3} = 3$; for $a=6$, $b = \dfrac{12-6}{3} = 2$; for $a=9$, $b = \dfrac{12-9}{3} = 1$; for $a=12$, $b=0$, which is not possible as the item stem states that both a and b must be at least 1. Therefore, the possible values for the number of $250 bonuses are 3, 6, and 9.

17. **(19)** *Math: Student-Produced Responses/Algebra/Manipulating Algebraic Expressions/Basic Algebraic Manipulations.* **SAT Topic: PAM.6.** Perform the indicated operations on the left side of the given equation, simplify, and arrange the terms to parallel the $ax^2 + bx + c$ side of the equation: $2x(3x+5) + 3(3x+5) = 6x^2 + 10x + 9x + 15 = 6x^2 + 19x + 15$. Therefore, $b = 19$ ($a=6$ and $c=15$).

18. **(12)** *Math: Student-Produced Responses/Geometry/Lines and Angles* and *Triangles/Properties of Triangles.* **SAT Topic: ATM.6.** Since $\overline{AE}$ is parallel to $\overline{CD}$ and $\overline{CE}$ intersects $\overline{AD}$, $\triangle BCD$ is similar to $\triangle BEA$. This can more easily be seen by transposing $\triangle BCD$ onto $\triangle BEA$:
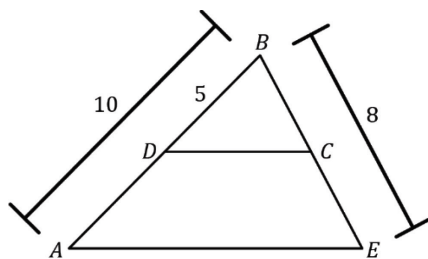
For similar triangles, the ratios of the lengths of their corresponding sides are equal, so $\dfrac{\overline{AB}}{\overline{BE}} = \dfrac{\overline{DB}}{\overline{BC}} \Rightarrow$

$\dfrac{10}{8} = \dfrac{5}{\overline{BC}} \Rightarrow \overline{BC} = 4$. Therefore, in the original figure , $\overline{CE} = \overline{CB} + \overline{BE} = 4 + 8 = 12$.

19. **(6)** *Math: Student-Produced Responses/Geometry/Circles* and *Triangles/Pythagorean Theorem* and *30°-60°-90° Triangles.* **SAT Topic: ATM.4.** The point given on the circle can be used to construct a right triangle:
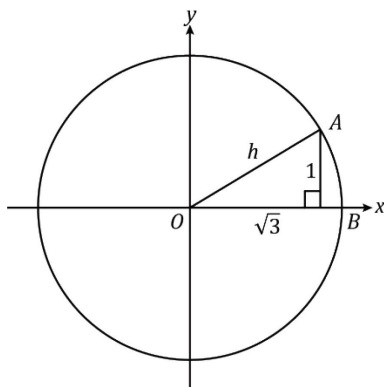
Use the Pythagorean theorem to solve for *h*: $h^2 = \sqrt{3}^2 + 1^2 = 4 \Rightarrow h = 2$. So, the ratio of the sides of the triangle is $1 : \sqrt{3} : 2$ —the same ratio as in a 30°-60°-90° triangle:
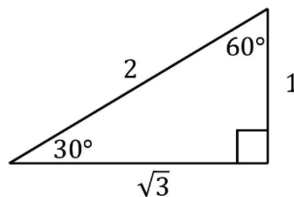
Therefore, the degree measure of $\angle AOB$ is 30°. So, $\dfrac{\pi}{a} = \dfrac{180°}{a} = 30° \Rightarrow a = \dfrac{180}{30} = 6$.

TIP What if you forgot the geometry necessary to determine the measure of $\angle AOB$? Not all is lost. Recall that the test is drawn to scale, unless otherwise noted. Use a piece of paper and mark off the measure of $\angle AOB$. Then, rotate your angle through the first quadrant to estimate how many such angles fit in the first quadrant. You'll see that three angles equal to $\angle AOB$ (within measurement error) fit in the first quadrant of the circle: $\dfrac{90°}{3} = 30°$.

20. **(1/4, .25)** *Math: Student-Produced Responses/Algebra/Solving Simultaneous Equations.* **SAT Topic: ALG.7.** A system of simultaneous linear equations can have zero solutions (the lines do not intersect), one solution (the lines intersect once), or infinitely many solutions (the two lines are identical). Multiply the first equation by 5, so the constant term is the same as in the second equation: $5(ax + by = 12) \Rightarrow$ $5ax + 5by = 60$. And set the two equations as equal: $5ax + 5by = 2x + 8y$. The coefficients of the x and y terms must be equal: $5a = 2$ and $5b = 8$. Therefore, $\dfrac{5a}{5b} = \dfrac{2}{8} \Rightarrow \dfrac{a}{b} = \dfrac{1}{4}$, or .25.

Section 4 Math, Calculator

1. **(C)** *Math: Multiple-Choice/Algebra/Creating, Solving, and Interpreting Algebraic Equations and Functions.* **SAT Topic: ALG.1.** Translate the given information into an expression for the amount earned, including the real world units so "like" units cancel, leaving the expression in units of "dollars":

   amount earned (dollars) $= \dfrac{\$0.09}{\text{download}} \times d \ \text{downloads} + \dfrac{\$0.002}{\text{stream}} \times s \ \text{streams} = 0.09d + 0.002s$.

2. **(B)** *Math: Multiple-Choice/Problem Solving and Advanced Arithmetic/Common Problem Solving Items/Proportions and Direct-Inverse Variation.* **SAT Topic: PSD.1.** Set up a proportion between the two ratios for number inspected out of number produced and solve for the unknown:

   $\dfrac{7 \text{ inspected}}{400 \text{ produced}} = \dfrac{x}{20,000 \text{ produced}} \Rightarrow x = \dfrac{7(20,000)}{400} = 350$ inspected.

3. **(A)** *Math: Multiple-Choice/Algebra/Expressing and Evaluating Algebraic Functions/Functions as Models* and *Creating, Solving, and Interpreting Algebraic Equations and Functions.* **SAT Topic: ALG.1.** Solve the given equation for m, substitute 73 for l, and evaluate: $l = 24 + 3.5m \Rightarrow m = \dfrac{l - 24}{3.5} = \dfrac{73 - 24}{3.5} = 14$.

   Alternatively, you can substitute 73 for l and solve for m: $73 = 24 + 3.5m \Rightarrow m = \dfrac{73 - 24}{3.5} = 14$.

4. **(C)** *Math: Multiple-Choice/Problem Solving and Advanced Arithmetic/Common Problem Solving Items/Proportions and Direct-Inverse Variation.* **SAT Topic: PSD.1.** According to the introductory information, the performer earns $120 per 8 people in attendance. Set this ratio equal to the amount earned per 20 people and solve for the unknown: $\dfrac{\$120}{8 \text{ people}} = \dfrac{x}{20 \text{ people}} \Rightarrow x = \dfrac{\$120(20)}{8} = \$300$.

5. **(C)** *Math: Multiple-Choice/Problem solving and Advanced Arithmetic/Common Problem Solving Items/Percents.* **SAT Topic: PSD.2.** If 43% of what the performer earns pays for costs, 57% of what the performer earns is profit. The performer earns $120 when 8 people attend, so 57% of $120 is $0.57(120) = \$68.40$.

6. **(B)** *Math: Multiple-Choice/Algebra/Solving Simple Equations or Inequalities with One Variable/Simple Equations.* **SAT Topic: ALG.6.** Translate the given information into algebraic equations: $4x + 12 = 8$ and $2x + 7 = ?$. Solve the first equation for x and substitute this value for x in the second equation and evaluate: $4x + 12 = 8 \Rightarrow 4x = -4 \Rightarrow x = -1$, so $2x + 7 = 2(-1) + 7 = 5$.

7. **(D)** *Math: Multiple-Choice/Algebra/Manipulating Algebraic Expressions/Basic Algebraic Expressions* and *Factoring Expressions* and *Coordinate Geometry/Graphs of Quadratic Equations and Relations.* **SAT Topic: PAM.2.** The x-intercepts of a parabola are the values of x for which the y-value is 0. Factor the right

side of the given equation: $y = x^2 - 6x + 8 = (x-2)(x-4)$. Therefore, $y = 0$ for $x = 2$ and $x = 4$. So, the equivalent form $y = (x-2)(x-4)$ includes the x-intercepts as constants: 2 and 4.

Alternatively, use your calculator to graph the parabolic equation. From the graph, you'll see that the x-intercepts are 2 and 4, so the correct equivalent equation must be (D) as this is the only equation that includes the constants 2 and 4.

8. **(D)** *Math: Multiple-Choice/Algebra/Creating, Solving, and Interpreting Algebraic Equations and Functions.* **SAT Topic: ALG.1.** Translate the given information into an equation. Include the units so "like" units cancel, leaving the terms in units of "points":

$$200 \text{ points} = k \text{ points} - \frac{2 \text{ points}}{\text{uncompleted task}} \times 100 \text{ uncompleted tasks} \Rightarrow 200 = k - 200 \Rightarrow k = 400.$$

9. **(A)** *Math: Multiple-Choice/Algebra/Solving Simultaneous Equations* and *Solving Algebraic Equations or Inequalities with One Variable/Simple Inequalities.* **SAT Topic: ALG.6.** The total weight of the boxes must be equal to or less than 2,400 pounds; the total number of boxes must be equal to or less than 45. Translate this information into a system of linear inequalities. The inequality relating the weights is

$$x \text{ boxes} \times \frac{40 \text{ pounds}}{\text{box}} + y \text{ boxes} \times \frac{65 \text{ pounds}}{\text{box}} \leq 2,400 \text{ pounds} \Rightarrow 40x + 65y \leq 2,400. \text{ And the inequality}$$

relating the number of boxes is $x \text{ boxes} + y \text{ boxes} \leq 45 \text{ boxes} \Rightarrow x + y \leq 45$.

10. **(B)** *Math: Multiple-Choice/Algebra/Expressing and Evaluating Algebraic Functions/Function Notation.* **SAT Topic: PAM.13.** The item stem asks for the value of $f(g(3))$. First, determine the value of $g(3)$, which is given in the stem: $g(3) = 2$. So, $f(g(3)) = f(2)$, the value of which is also given in the stem: $f(2) = 3$.

11. **(B)** *Math: Multiple-Choice/Data Interpretation/Tables (Matrices)* and *Problem Solving and Advanced Arithmetic/Common Problem Solving Items/Proportions and Direct-Inverse Variation.* **SAT Topic: PSD.3.** The item stem asks for the number of days necessary for Tony to read one novel, based on the values given in the table. Set up an expression for the number of days to read one novel, including the real world units, so "like" units cancel, leaving the expression in units of "days per novel":

$$\frac{\text{days}}{\text{novel}} = \frac{349,168 \text{ words}}{\text{novel}} \times \frac{\text{minute}}{250 \text{ words}} \times \frac{\text{hour}}{60 \text{ minutes}} \times \frac{\text{day}}{3 \text{ hours}} \approx 7.8 \text{ days per novel. The answer choice}$$

closest to this value is (B), 8.

12. **(D)** *Math: Multiple-Choice/Algebra/Creating, Solving, and Interpreting Algebraic Equations and Functions* and *Solving Algebraic Equations or Inequalities with One Variable/Simple Inequalities.* **SAT Topic: ALG.2.** The item stem asks for the inequality that expresses the amount of trash in the landfill, as a function of the number of years, y, when the amount is equal to or greater than the capacity of 325,000 tons. The initial amount in the landfill is 175,000 tons, so $175,000 \text{ tons} + \frac{7,500 \text{ tons}}{\text{year}} \times y \text{ years} \geq 325,000 \text{ tons} \Rightarrow$

$175,000 + 7,500y \geq 325,000$.

13. **(D)** *Math: Multiple-Choice/Statistics/Data Collection Methods.* **SAT Topic: PSD.10.** For a survey to be an accurate portrayal of a larger population, the sample of people interviewed should be representative of the target population—a random sampling best achieves this aim. If a sample is not representative, it will be subject to bias—certain groups may be over-represented and their opinions magnified while others may be under-represented. The survey in question is to determine "whether people in a certain large town…" To adequately survey a sample population of a large town, those interviewed must be a random selection of the town's population. By only surveying customers at a restaurant on a Saturday

morning, the survey results will be biased—most probably towards those who don't watch sports on television (as those interviewed were out eating at a restaurant on a Saturday morning, rather than staying home to watch sports).

Note that the sample size is adequate to draw inferences about a larger population size. And the population size does not affect any bias of the sample, nor does the number of people refusing to respond, as long as the remaining sample size is still large and random enough to represent the larger population.

14. **(C)** *Math: Multiple-Choice/Data Interpretation/Scatter Plots.* **SAT Topic: PSD.4.** The graph includes a line of best fit and the item stem asks you to use this line of best fit to estimate the year (x-value) in which the number of miles traveled by air passengers was approximately 550 billion (y-value):

Miles Traveled by Air Passengers in Country X, 1960 to 2005
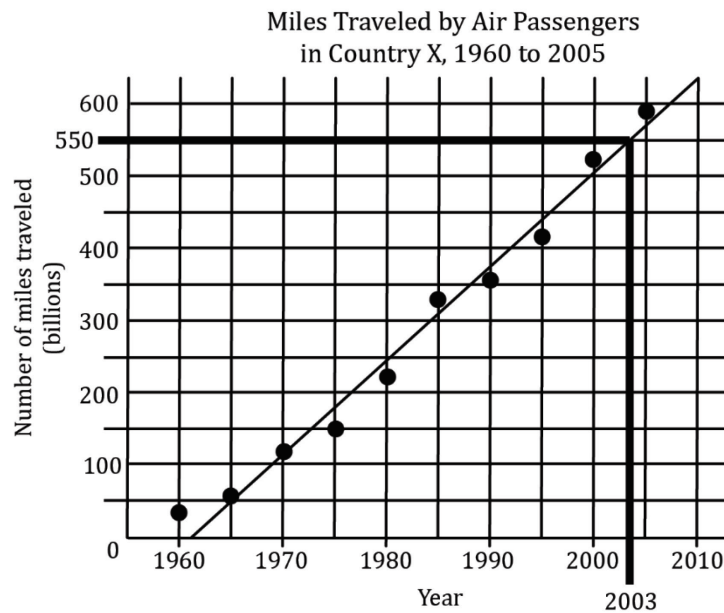
The year that corresponds to a y-value of 550 is one or two less than 2005—2003 is the only answer choice that falls in this range.

15. **(A)** *Math: Multiple-Choice/Problem Solving and Advanced Arithmetic/Common Problem Items/Ratios.* **SAT Topic: PSD.1.** Translate the given information into an expression, including the real world units so "like" units cancel, leaving the value in units of "miles per hour":

$$\frac{\text{miles}}{\text{hour}} = \frac{580,000,000 \text{ miles}}{\cancel{\text{year}}} \times \frac{\cancel{\text{year}}}{365 \cancel{\text{days}}} \times \frac{\cancel{\text{day}}}{24 \text{ hours}} \approx 66,000 \text{ miles per hour.}$$

16. **(B)** *Math: Multiple-Choice/Probability/Arithmetic Probability* and *Data Interpretation/Tables (Matrices).* **SAT Topic: PSD.7.** According to the table, of the interviewed graduates who passed the bar exam ($18 + 7 = 25$), 7 did not take a review course: 7 out of 25, or $\frac{7}{25}$.

17. **(C)** *Math: Multiple-Choice/Problem Solving and Advanced Arithmetic/Common Problem Solving Items/Percents.* **SAT Topic: PSD.2.** According to the item stem, the weight of the unknown element is 20% less than that of calcium, or 80% of 40 amu: $0.8(40 \text{ amu}) = 32$ amu.

18. **(C)** *Math: Multiple-Choice/Statistics/Averages* and *Median.* **SAT Topic: PSD.9.** The mean ($165,000) is the average of all the values, and the median ($125,000) is the middle-most value when all the values are arranged in order. Since the mean is greater than the median, it must be overly biased by some larger valued outliers. Outliers have a significant impact on the average or mean value (since the value itself is weighted), while the median isn't shifted one way or another by an outlier—an outlier counts the same as any other value. Therefore, the sample population must have a few outliers valued much more than the rest.

19. **(B)** *Math: Multiple-Choice/Statistics/Median* and *Data Interpretation/Tables (Matrices).* **SAT Topic: PSD.9.** Again, the median is the middle-most value when all the values are arranged in descending or ascending order. Since the item stem asks about the total number of students surveyed from both schools, add the columns in the table:

Number of Siblings	Lincoln School	Washington School	Total Number Surveyed
0	120	140	260
1	80	110	190
2	60	30	90
3	30	10	40
4	10	10	20

Now, find the middle-most value. Since the students who have 2 to 4 siblings, inclusive, totals 150, cross off those 150 as well as 150 from the "0 sibling" category containing 260: 110 students remain in the "0 sibling" category, which is less than the 190 in the "1 sibling" category. Therefore, the middle-most value must fall in the "1 sibling" category.

20. **(C)** *Math: Multiple-Choice/Statistics/Drawing Inferences* and *Problem Solving and Advanced Arithmetic/Common Problem Solving Items/Proportions and Direct-Inverse Variation* and *Data Interpretation/Tables (Matrices).* **SAT Topic: PSD.7.** Set up proportions between the sample populations with 4 siblings and the total populations at the two schools, where x represents the total number of students in each school that has 4 siblings:

Lincoln: $\dfrac{10}{300} = \dfrac{x}{2,400} \Rightarrow x = \dfrac{2,400(10)}{300} = 80$

Washington: $\dfrac{10}{300} = \dfrac{x}{3,300} \Rightarrow x = \dfrac{3,300(10)}{300} = 110$

Therefore, based on the survey results, Washington School is expected to have $110 - 80 = 30$ more students with 4 siblings than the Lincoln School.

21. **(D)** *Math: Multiple-Choice/Algebra/Creating, Solving, and Interpreting Algebraic Equations and Functions* and *Problem Solving and Advanced Arithmetic/Common Advanced Arithmetic Items/Absolute Value.* **SAT Topic: ALG.4.** According to the stem, the total time required to complete the project, y, must be within 10 hours of the estimate, x. Therefore, $y < x + 10$ and $y > x - 10$. Combine these two inequalities: $x - 10 < y < x + 10$. Now, subtract x from all parts of the inequality: $-10 < y - x < 10$.

Note that this item can also be solved using the concept of absolute value. If the actual project completion time must be within 10 hours of the estimate, the absolute value of the difference between the two times must be less than 10 hours: $|y-x|<10$. This is the same as $-10<y-x<10$.

TIP This item can also be solved using the "Plug-and-Chug" strategy. Say the estimate x was 10 hours—the actual time y must be between 0 and 20; let's assume it was also 10 hours. Now, substitute 10 for both x and y in the answer choices—only the correct choice will hold true:

A) $x+y<10$: $10+10\overset{?}{<}20\Rightarrow 20\not< 20$ ✘

B) $y>x+10$: $10\overset{?}{>}10+10\Rightarrow 10\not> 20$ ✘

C) $y<x-10$: $10\overset{?}{<}10-10\Rightarrow 10\not< 0$ ✘

D) $-10\overset{?}{<}y-x\overset{?}{<}10\Rightarrow -10\overset{?}{<}10-10\overset{?}{<}10\Rightarrow -10<0<10$ ✓

22. **(B)** *Math: Multiple-Choice/Algebra/Manipulating Algebraic Expressions/Manipulating Expressions Involving Exponents.* **SAT Topic: PAM.14.** Solve the given equation for the square of the distance, r^2:

$$I=\frac{P}{4\pi r^2}\Rightarrow r^2=\frac{P}{4\pi I}.$$

23. **(A)** *Math: Multiple-Choice/Algebra/Solving Algebraic Equations or Inequalities with One Variable/Simple Equations.* **SAT Topic: PSD.1.** The item stem states that the intensity measured by Observer A is 16 times that measured by Observer B ($I_A=16I_B$) and asks for the ratio of the two distances ($\frac{r_A}{r_B}=?$). Note that the power of the emitted signal is the same in both cases. Use the form of the equation derived in the previous item to set up the necessary ratio: $\dfrac{r_A^2}{r_B^2}=\dfrac{\frac{P}{4\pi I_A}}{\frac{P}{4\pi I_B}}=\dfrac{I_B}{I_A}=\dfrac{I_B}{16I_B}=\dfrac{1}{16}$. Therefore, $\dfrac{r_A}{r_B}=\sqrt{\dfrac{1}{16}}=\dfrac{1}{4}$.

24. **(A)** *Math: Multiple-Choice/Coordinate Geometry/Graphs of Quadratic Equations and Relations* and *Geometry/Circles.* **SAT Topic: ATM.8.** Recall the equation for a circle in the coordinate plane: $(x-h)^2+(y-k)^2=r^2$, where (h,k) is the center of the circle and r is the radius. To parallel the form of the given equation, multiply the polynomials in the circle equation using the FOIL method: $(x-h)(x-h)+(y-k)(y-k)=r^2\Rightarrow x^2-2hx+h^2+y^2-2ky+k^2=r^2\Rightarrow x^2+y^2-2hx-2ky=r^2-h^2-k^2$, which now parallels the form of the given equation ($x^2+y^2+4x-2y=-1$), so $-2h=4\Rightarrow h=-2$, $-2k=-2\Rightarrow k=1$, and $r^2-h^2-k^2=-1\Rightarrow r^2=-1+h^2+k^2=-1+(-2)^2+(1)^2=4\Rightarrow r=\sqrt{4}=2$ (distances must be positive).

Alternatively, you can complete the square to put the given equation into the standard form of a circle, $(x-h)^2+(y-k)^2=r^2$. First, complete the square with respect to x. Since $\left(\dfrac{b}{2}\right)^2=\left(\dfrac{4}{2}\right)^2=4$, add 4 to each side, completing the square: $x^2+4x+4+y^2-2y=-1+4\Rightarrow(x+2)^2+y^2-2y=3$. Now, complete the

square with respect to y. Since $\left(\dfrac{b}{2}\right)^2 = \left(\dfrac{-2}{2}\right)^2 = 1$, add 1 to each side, completing the square:

$(x+2)^2 + y^2 - 2y + 1 = 3 + 1 \Rightarrow (x+2)^2 + (y-1)^2 = 4$. Thus, $r^2 = 4 \Rightarrow r = 2$.

25. **(A)** *Math: Multiple-Choice/Coordinate Geometry/Slope of a Line.* **SAT Topic: ALG.9.** The item stem asks about the slope of a line passing through points $(a,0)$ and $(0,b)$. Slope is the rise over run, or $\dfrac{\Delta y}{\Delta x}$, so the slope of the line is $\dfrac{b-0}{0-a} = -\dfrac{b}{a}$. Since $a + b = 0$, $a = -b$, and $-\dfrac{b}{a} = -\dfrac{b}{-b} = 1$. Therefore, the slope of the line is positive.

26. **(D)** *Math: Multiple-Choice/Algebra/Expressing and Evaluating Algebraic Functions/Concepts of Domain and Range.* **SAT Topic: PSD.5.** Identify in the graph the corresponding y-value for each of the x-values given in the choices:

I. $x = -4$: $y = 1$

II. $x = \dfrac{3}{2}$: $y = 1$

III. $x = 3$: $y = 1$

Therefore, the correct answer includes all three choices: I, II, and III.

27. **(D)** *Math: Multiple-Choice/Coordinate Geometry/Slope of a Line* and *Qualitative Behavior of Graphs of Functions.* **SAT Topic: PSD.5.** The item stem asks about the "average rates at which the temperatures change." Since rate is the change in temperature, T, per corresponding change in time, t, you are being asked to compare $\dfrac{\Delta T}{\Delta t}$ in the two data sets. Note that $\dfrac{\Delta T}{\Delta t}$ corresponds the slope of the curve drawn through the data points in the graph.
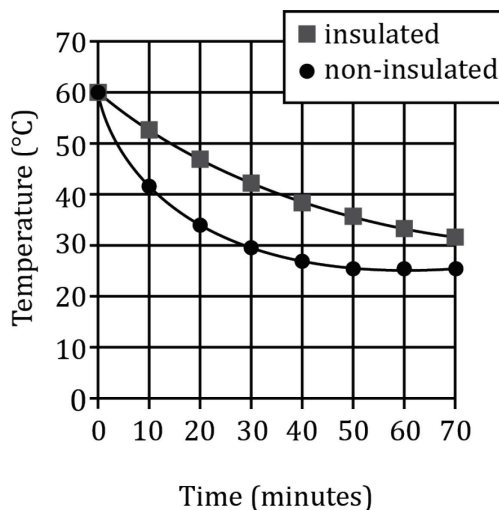
This makes it clear that the magnitude of the slope (rate of temperature change) of the non-insulated data set is greater than that for the insulated data set from 0 to 20 minutes; and it's less from 40 to 70 seconds, eliminating (A), (B), and (C). Therefore, (D) is the correct choice.

28. **(B)** *Math: Multiple-Choice/Coordinate Geometry/Graphs of Linear Equations.* **SAT Topic: ALG.9.** Don't even bother with determining the slope of $\overline{CE}$ (to determine the slope of $\overline{BD}$, and thereby identify the correct equation, since the product of the slopes of perpendicular lines equals -1). Simply substitute the point $(1,0)$, through which $\overline{BD}$ passes (since the diagonals of a square are perpendicular bisectors of each other), into the answer choices—the equation for this line must equal 0 for $x = 1$:

A) $y = -3x - 1 = -3(1) - 1 \neq 0$ ✗

B) $y = -3(x - 1) = -3(0) = 0$ ✓

Double-check the remaining choices, because it is possible for more than two lines to pass through this point:

C) $y = -\dfrac{1}{3}x + 4 = -\dfrac{1}{3}(1) + 4 \neq 0$ ✗

D) $y = -\dfrac{1}{3}x - 1 = -\dfrac{1}{3}(1) - 1 \neq 0$ ✗

Therefore, (B) is the only equation that passes through the point $(1,0)$.

29. **(B)** *Math: Multiple-Choice/Algebra/Solving Simultaneous Equations* and *Solving Quadratic Equations.* **SAT Topic: PAM.8.** Substitute 3 for y and the values given for a and b in each of the answer choices into the second equation and simplify:

A) $3 = -2x^2 + 2 \Rightarrow -2x^2 = 1 \Rightarrow x^2 = -\dfrac{1}{2}$

B) $3 = -2x^2 + 4 \Rightarrow -2x^2 = -1 \Rightarrow x^2 = \dfrac{1}{2}$

C) $3 = 2x^2 + 4 \Rightarrow 2x^2 = -1 \Rightarrow x^2 = -\dfrac{1}{2}$

D) $3 = 4x^2 + 3 \Rightarrow x^2 = 0$

Eliminate (A) and (C) because there is no real number that, when squared, equals a negative value.

Eliminate (D) because this gives only one value for x, $x = 0$. Only (B) returns two values for x: $x = \pm\dfrac{1}{\sqrt{2}}$.

30. **(A)** *Math: Multiple-Choice/Geometry/Triangles/Properties of Triangles* and *30°-60°-90° Triangles.* **SAT Topic: ATM.6.** Note that the hexagon is composed of six triangles. Therefore, the center angle of each of these triangles is equal to $\dfrac{360°}{6} = 60°$ and each triangle is an equilateral triangle:
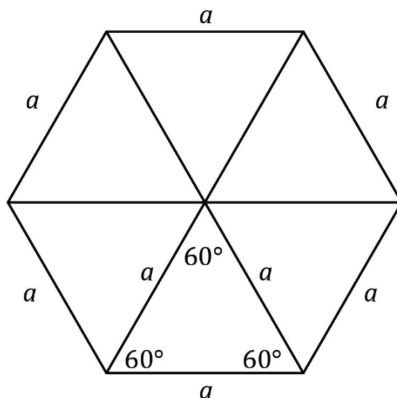
Find the altitude of each equilateral triangle from the ratio of the sides for a 30°-60°-90° triangle:
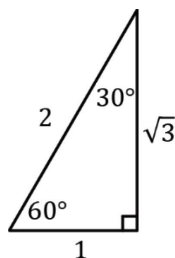
The altitude of each triangle is $\sqrt{3} \times \dfrac{a}{2} = \dfrac{a\sqrt{3}}{2}$; the area of each triangle is $\dfrac{1}{2}(a)\left(\dfrac{a\sqrt{3}}{2}\right) = \dfrac{a^2\sqrt{3}}{4}$; and the

area of the hexagon is $6 \times \dfrac{a^2\sqrt{3}}{4} = \dfrac{3a^2\sqrt{3}}{2}$. Set this equal to $384\sqrt{3}$ (the given area for the hexagon) and

solve for a^2 , which is also equal to the area of the square, in square inches: $\dfrac{3a^2\sqrt{3}}{2} = 384\sqrt{3} \Rightarrow$

$\dfrac{3a^2}{2} = 384 \Rightarrow a^2 = \dfrac{2 \times 384}{3} = 256$.

31. (**14**) *Math: Student-Produced Responses/Problem Solving and Advanced Arithmetic/Common Problem Solving Items/Proportions and Direct-Inverse Variation.* **SAT Topic: PSD.1.** Translate the given information into an algebraic equation, where x equals the number of years it takes the beaches to erode 21 feet at a rate of 1.5 feet per year and solve for x: $\dfrac{1.5 \text{ feet}}{\text{year}} \times x \text{ years} = 21 \text{ feet} \Rightarrow x = \dfrac{21}{1.5} = 14$.

32. (**7**) *Math: Student-Produced Responses/Problem Solving and Advanced Arithmetic/Complicated Problem Solving Items.* **SAT Topic: PSD.2.** Translate the given information into an algebraic equation, including units so "like" units cancel, leaving the terms with units of "minutes": $h \text{ hours} \times \dfrac{60 \text{ minutes}}{\text{hour}} + 30 \text{ minutes} = 450 \text{ minutes} \Rightarrow 60h + 30 = 450 \Rightarrow h = \dfrac{450 - 30}{60} = 7$.

33. (**11**) *Math: Student-Produced Responses/Coordinate Geometry/Graphs of Quadratic Equations and Relations.* **SAT Topic: PAM.12.** If the point $(3,6)$ lies on the graph of the function $f(x) = 3x^2 - bx + 12$,

then the function equals 6 for $x = 3$, or $6 = 3x^2 - bx + 12$. Solve the equation for b:

$$6 = 3(3)^2 - 3b + 12 \Rightarrow b = \frac{3(9) + 12 - 6}{3} = 9 + 4 - 2 = 11.$$

34. **(105)** *Math: Student-Produced Responses/Algebra/Creating, Solving, and Interpreting Algebraic Equations and Functions* and *Solving Simultaneous Equations.* **SAT Topic: ALG.5.** Translate the given information into a system of linear equations, where x equals the number of hours Doug spent in the lab and y equals the number of hours Laura spent in the lab: $x + y = 250$ and $x = y + 40$. Substitute $y + 40$ for x in the first equation and solve for y: $(y + 40) + y = 250 \Rightarrow y = \frac{250 - 40}{2} = 105$.

35. **(15)** *Math: Student-Produced Responses/Algebra/Expressing and Evaluating Algebraic Functions/Functions as Models.* **SAT Topic: ALG.8.** Rewrite the given equation to include the known units: a dollars $= 18(t$ weeks$) + 15$. For each term in the equation to have units of "dollars," the 15 must have units of dollars (and the 18 has units of dollars per week):

a dollars $= \dfrac{18 \text{ dollars}}{\text{week}} \times t \text{ weeks} + 15$ dollars . Thus, the initial deposit, when $t = 0$, is 15 dollars.

36. **(32)** *Math: Student-Produced Responses/Geometry/Circles* and *Lines and Angles* and *Problem Solving and Advanced Arithmetic/Common Arithmetic Items/Proportions and Direct-Inverse Variation.* **SAT Topic: ATM.5.** Since $\angle LMN = 60°$, and segments LM and MN are tangential to the circle, the quadrilateral $LMNO$ is comprised of two 30°-60°-90° triangles (with the central angle for $\overset{\frown}{LN}$ being 120 degrees):
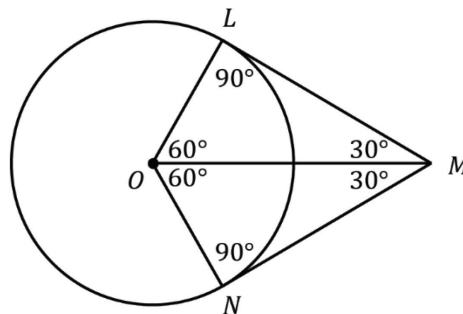
Set up a proportion between the ratio of the length of the minor arc to the circumference of the circle and the ratio of the angle subtended by the minor arc to the total degree measure of a circle:

$$\frac{\overset{\frown}{LN}}{96} = \frac{120°}{360°} \Rightarrow \overset{\frown}{LN} = \frac{120 \times 96}{360} = 32.$$

37. **(3284)** *Math: Student-Produced Responses/Algebra/Expressing and Evaluating Algebraic Functions/Functions as Models.* **SAT Topic: PAM.13.** To determine the number of plants after one year, substitute 3,000 for $N_{\text{this year}}$ and substitute 4,000 for k: $N_1 = 3,000 + 0.2(3,000)\left(1 - \dfrac{3,000}{4,000}\right) = 3,150$. And to determine the number of plants after two years, repeat the calculation, substituting 3,150 for $N_{\text{this year}}$ (K is still 4,000): $N_2 = 3,150 + 0.2(3,150)\left(1 - \dfrac{3,150}{4,000}\right) \approx 3,284$. Note that a calculator makes short work of these calculations if the key strokes are entered in reverse order. For example, to determine N_2, enter "-(3150/4000) + 1 $\times$ 3150 $\times$ .2 + 3150 =".

38. (7500) *Math: Student-Produced Responses/Algebra/Solving Algebraic Equations or Inequalities with One Variable/Equations Involving Rational Expressions.* **SAT Topic: PAM.7.** Solve the given equation for K (for convenience, we've replaced $N_{\text{this year}}$ with N_0 and $N_{\text{next year}}$ with N):

$$N = N_0 + 0.2N_0\left(1 - \frac{N_0}{K}\right) = N_0 + 0.2N_0 - \frac{0.2N_0^2}{K} \Rightarrow \frac{0.2N_0^2}{K} = 1.2N_0 - N \Rightarrow K = \frac{0.2N_0^2}{1.2N_0 - N}. \text{ Substitute } 3{,}000$$

for N_0, 3360 for N, and evaluate: $K = \dfrac{0.2N_0^2}{1.2N_0 - N} = \dfrac{0.2(3{,}000)^2}{1.2(3{,}000) - 3{,}360} = \dfrac{0.2(3{,}000)^2}{240} = 7{,}500$.