Chapter 12
Practice Test 5:
Answers and
Explanations

PRACTICE TEST 5 ANSWER KEY

Section 1: Reading		Section 2: Writing & Language		Section 3: Math (No Calculator)		Section 4: Math (Calculator)	
1. C	27. A	1. A	23. D	1. A	11. B	1. D	20. D
2. C	28. B	2. B	24. C	2. A	12. C	2. B	21. C
3. D	29. B	3. C	25. A	3. D	13. D	3. A	22. B
4. A	30. C	4. B	26. C	4. C	14. D	4. D	23. A
5. A	31. D	5. B	27. B	5. A	15. B	5. A	24. B
6. D	32. B	6. D	28. C	6. B	16. 4	6. C	25. D
7. A	33. A	7. C	29. C	7. B	17. 500	7. B	26. B
8. C	34. D	8. B	30. B	8. A	18. 5	8. C	27. B
9. D	35. B	9. B	31. A	9. A	19. 1	9. A	28. B
10. B	36. C	10. D	32. A	10. C	20. $\frac{5}{13}$, .384, or .385	10. A	29. C
11. D	37. C	11. B	33. C			11. D	30. D
12. C	38. A	12. B	34. D			12. A	31. 5 or 6
13. B	39. B	13. D	35. B			13. A	
14. B	40. D	14. A	36. D			14. D	32. 19.4
15. A	41. A	15. A	37. D			15. C	33. 10
16. C	42. C	16. C	38. A			16. C	34. 11
17. D	43. A	17. C	39. B			17. B	35. $\frac{7}{12}$
18. A	44. D	18. A	40. C			18. C	
19. D	45. A	19. B	41. D			19. C	36. 4
20. C	46. B	20. D	42. D				37. 321
21. D	47. D	21. A	43. A				38. 7
22. C	48. C	22. A	44. B				
23. B	49. B						
24. D	50. C						
25. D	51. D						
26. B	52. C						

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PRACTICE TEST 5 EXPLANATIONS

Section 1: Reading

1. **C** The question asks about what happens in the passage as a whole. Because this is a general question, it should be done after all the specific questions. This passage is about a stranger showing up unexpectedly for an unhappy reunion with a former shipmate. Choice (A) might initially look attractive because the narrator and the stranger do hide and then surprise the captain, but there is no *plan* to surprise the captain. Eliminate (A). Choice (B) has nothing to do with the passage and can be eliminated. Choice (C) is a solid paraphrase of the prediction, so keep it. Choice (D) does mention two characters sharing time on a ship, but the passage does not indicate that the two men were reminiscing at all. The correct answer is (C).

2. **C** The question asks for a description of the passage. Because this is a general question, it should be done after all the specific questions. Look at the second part of each answer choice. The *encounter* in the passage is not *enthusiastic*, so (A) can be eliminated. There is no *conference*, so (B) can also be eliminated. Choice (C) looks good because the narrator was worried, and the stranger and the captain fought, so keep (C). There is no *homecoming*, so eliminate (D). The correct answer is (C).

3. **D** The question asks what the word *fancy* means in lines 5 and 10. Go back to the text, find the word *fancy*, and mark it out. Carefully read the surrounding text to determine another word that would fit in the blanks based on the context of the passage. In the first case, the narrator says that he didn't step back inside *quick enough for his fancy*. The correct answer should mean something like "liking." See if that also makes sense in the second occurrence. The stranger tells the narrator that he's *taken quite a fancy* to him because the narrator reminds him of his own son, or *the pride of [his] 'art*. "Liking" definitely fits in that context as well. Choices (A) and (C) can be eliminated immediately. Choice (B) might appear to match the context of the first occurrence of *fancy*, but *impatience* has nothing to do with the prediction of "liking," so (B) can be eliminated. *Preference* means "liking." The correct answer is (D).

4. **A** The question asks about the narrator's sense of the stranger's emotions regarding the coming meeting between him and the captain. Because this is the first question in a paired set, it can be done in tandem with Q5. Consider the answers for Q5 first. In (5A), the narrator observes that *the stranger was certainly frightened himself*, which supports (4A). Choices (5B) and (5D) describe the captain and not the stranger, so eliminate them both. Eliminate (5C) because it does not directly describe any emotional state, leaving (4A) and (5A) as the only possible pair. The correct answers are (4A) and (5A).

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

6. **D** The question asks about how the narrator is addressed by the stranger, so look for evidence in the text to predict what the answer might be. In the text used to answer previous questions, the stranger tells the narrator he has *taken a fancy* to him, but in that same paragraph the stranger swears at the boy *with an oath that made [him] jump*. Eliminate (A) because while the stranger does address the narrator with friendliness at one point, he never addresses him with *respect*. Choice (B) is reversed—the stranger does address the boy with *anger* but he's never violent to him. Choice (C) does not match the prediction. *Affection* in (D) looks good, and later the stranger shows that he does not trust the narrator when he sends him for rum but tells him to leave the door open. The correct answer is (D).

7. **A** The question asks about the purpose of the first paragraph. Throughout the paragraph, the narrator creates a picture of the stranger, from how he looks to how he acts, which directly supports (A). Eliminate (B) because there is no *belief* to *criticize* in the first paragraph. The paragraph describes an interaction, not a *relationship*, so (C) can be eliminated as well. Last, there is no specific *discrepancy*, eliminating (D). The correct answer is (A).

8. **C** The question asks what the word *talons* means in line 51. Go back to the text, find the word *talons*, and mark it out. Carefully read the surrounding text to determine another word that would fit in the blank based on the context of the passage. Black Dog says he's lost two talons, and then he holds up *his mutilated hand*. The correct answer should mean something related to a "hand," so eliminate (A), (B), and (D). The correct answer is (C).

9. **D** The question asks why the narrator uses a particular phrase (*all the brown had gone out of his face*). Use the given line reference to find the window. The narrator uses the phrase to describe the captain's reaction to seeing the stranger. Black Dog surprises the captain, who *spun round on his heel...he had the look of a man who sees a ghost, or the evil one, or something worse, if anything can be; and upon my word, I felt sorry to see him all in a moment turn so old and sick.* The narrator uses the phrase to show that the captain is reacting badly to the surprise of seeing Black Dog. Choice (A) does not match that prediction, so it can be eliminated. Choice (B) might be true, but isn't supported by the text. Choice (C) doesn't have any support in the text, either, so it can be eliminated. The correct answer is (D).

10. **B** The question is the best evidence question in a paired set. Because Q9 was a specific question, simply look at the lines used to answer Q9. Lines 37–42 were used to answer the previous question. The correct answer is (B).

11. **D** The question asks why the author mentions certain examples. Use the line reference to find the window and look for the claim the examples are meant to illustrate. The examples of gift-giving are both recent and about Christmas, but they are offered to show that *the ancient practice of gift-giving is still pervasive and significant in modern cultures.* Eliminate (A), as there's no mention of a *recent increase.* Eliminate (B) and (C), since neither *discrepancies* nor *apprehension* is mentioned. The *pervasiveness of gift-giving* in (D) matches the prediction. The correct answer is (D).

12. **C** The question asks what the word *rich* means in line 20. Go back to the text, find the word *rich*, and mark it out. Carefully read the surrounding text to determine another word that would fit in the blank based on the context of the passage. In this case, *rich* refers to the plethora of information that might help to explain consumer behavior. The correct answer should mean something like "abounding." Choices (A) and (B) are actual definitions of the word *rich*, but they don't make sense based on the context. Both of these answers can be eliminated. Choice (C) could work, because when something is *fertile* it is *abundantly productive,* which fits the context of the passage. Choice (D) might connect with the idea of foods that are rich, but that doesn't make sense in this context. The correct answer is (C).

13. **B** The question asks what the passage indicates about the *gift-giving described in lines 28–29.* Read a window around the given line reference. Lines 28–29 state, *Mauss concluded that gift-giving is a self-perpetuating system of reciprocity.* The description of the gift-giving system continues through line 53. The window is quite large, and Q13 is the first question in a paired set, so it can be done in tandem with Q14. Look at the answers for Q14. The lines for (14A) state that the *motives* for gift-gifting *become institutionalized...so that under appropriate conditions an individual is socially obligated to give.* Check the answers for Q13 to see whether any of the answers are supported by these lines. At first glance, these lines may seem to support (13A), but the lines for (14A) discuss obligation on the part of gift givers, rather than *gift recipients*. The information in (14A) doesn't

support any of the answer choices for Q13, so eliminate (14A). The lines for (14B) state, *Adequate or overly adequate repayment...creates an obligation to repay on the part of the original giver, and the cycle is reinitiated*. These lines support (13B), so draw a line connecting (13B) with (14B). The lines for (14C) indicate that *acceptance of a particular gift constitutes an acknowledgment and acceptance of the identity that the gift is seen to imply*. At first glance, these lines may seem to support (13A), but the text doesn't actually suggest that it is *oppressive* to accept the identity implied by the gift. These lines do not support any of the answer choices for Q13, so eliminate (14C). The lines for (14D) indicate that the *underlying behavioral questions* related to *gift selection* have *not been addressed by empirical research*. These lines do not support any of the answer choices for Q13, so eliminate (14D). Without any support in the answers from Q14, (13A), (13C), and (13D) can be eliminated. The correct answers are (13B) and (14B).

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

15. **A** The question asks what *Marcell Mauss believes* about *people's reasons for giving gifts*. This is the first question in a paired set, but it is a specific question, so it can be done on its own. Use chronology to find the window for the question. Q13 asked about lines 28–29, so start with line 30 and scan the passage for information about people's reasons for gift-giving. Lines 34–38 list several possible reasons for giving, including *the need to establish or maintain peaceful relations, or simply the expectation of reciprocal giving*. Eliminate answers that don't match this prediction. Keep (A) because it matches the prediction: the need to make and keep peace and the expectation of receiving a gift in return (*reciprocal giving*) are examples of people's *own needs* that motivate gift-giving. Choice (B) is a Could Be True trap answer: while it is possible that people's reasons for giving gifts *change* as they age, the passage doesn't discuss this. Eliminate (B). Choice (C) is a Deceptive Language trap answer: the passage says that Mauss studied *numerous...societies*, but it doesn't discuss any differences in gift-giving between cultures. Eliminate (C). Choice (D) is a Could Be True trap answer: while it is reasonable to think that a person's reason for giving a gift influences the *timing* of the gift, the passage doesn't discuss this. Eliminate (D). The correct answer is (A).

16. **C** The question is the best evidence question in a paired set. Because the previous question was a specific question, simply look at the lines used to answer Q15. Lines 34–38 provided the prediction for Q15. Keep (C) and eliminate (A), (B), and (D). The correct answer is (C).

17. **D** The question asks how *Schwartz* would view the gift-exchanging process. Use the given line reference to find the window. The fourth paragraph presents Schwartz's insights about a gift's ability to reflect the giver's perception of the recipient and the implicit acceptance of that perception when a receiver accepts a gift. This point about the process matches well with (D), symbolic. Though it may be true that such a process could be stressful or unnerving, no evidence is given that Schwartz considers it to be so. Thus, (A) and (B) can be eliminated. While some givers and receivers may act intentional[ly], there's no evidence that the process always operates that way, so (C) can be eliminated. The correct answer is (D).

18. **A** The question asks what the word *function* means in line 65. Go back to the text, find the word *function*, and mark it out. Carefully read the surrounding text to determine another word that would fit in the blank based on the context of the passage. In this case, *function* refers to gift selection. The correct answer should mean something like "objective," which supports (A). The *nevertheless* at the beginning of the sentence shows a continuation from the previous paragraph. The focus of the previous paragraph was how gift-giving *does* something, not *when* the gifts are given. Therefore, *function* in this context does not have to do with an event. Choices (B) and (C) can be eliminated. Choice (D), *occupation*, does not fit the context of the sentence. The correct answer is (A).

19. **D** The question asks why the author mentions *a gift shop's recent advertisement.* Use the given line reference to find the window. The ad does not question any prior claims or counter any explanations, eliminating (A) and (C). Choice (B) can be eliminated because the advertisement does not *offer a motive* for a certain behavior. The ad supports what was said in paragraph 3, a previous window. The correct answer is (D).

20. **C** The question asks about information in both the passage and the graph. Use the passage and the graph to answer it. The *recipient's self-concept* is not included in the graph, nor is the *amount of money the giver spent*, eliminating (A) and (B). Choice (D) does not work because the *thoughtfulness* is not measured by the graph. Rather, the graph shows the implicit communication between the gift-giver and recipient, and the passage supports this information in the last paragraph. The correct answer is (C).

21. **D** The question refers to the *encoding phase represented in the figure* and asks what the author would likely say the gift-giver is attempting to convey during this stage. First, locate the *encoding phase* in the figure. The figure is titled *Gift-Giving as Communication*, and shows the encoding taking place between the *giver* and the *gift*. As is implied by the question, the figure shows the gift-giver encoding the gift with some sort of meaning. Next, look for evidence in the passage regarding the author's views on what information gift-givers convey with gifts. In lines 34–38, the author recounts a theory: *The obligation to give may be based on moral or religious imperatives, the need to recognize and maintain a status hierarchy, the need to establish or maintain peaceful relations, or simply the expectation of reciprocal giving.* In lines 54–57, *the author recounts another finding: Schwartz (1967) noted that beyond the functions served by the general process of gift exchange, the characteristics of the gift itself also act as a powerful statement of the giver's perception of the recipient.* To summarize, the author suggests that by giving gifts, a gift-giver may be communicating information about their status relative to the recipient, a desire for peaceful relations with the recipient, an expectation that the recipient will give a gift in return, or information about how they perceive the recipient. Eliminate answer choices that don't match the passage. Choice (A) is a Right Answer, Wrong Question trap: although the author says *the nature of the occasion* may affect *consumer behavior*, he doesn't indicate that gift-givers use the gift to communicate information about *the occasion for giving*. Eliminate (A). Eliminate (B) because the author never mentions *the giver's personal preferences.* Eliminate (C) because the author never mentions *the location* of the purchase. Keep (D) because *the relationship between the giver and receiver* matches the statements in the passage about *status, peaceful relations,* and *the giver's perception of the recipient.* The correct answer is (D).

22. **C** The question asks for a piece of information that *contradicts* the student's claim that *over half of solar radiation influences the ground temperature.* Read the line references in each of the answer choices. Choice (A) refers to a situation in which the atmosphere is *letting through the light rays of the sun relatively easily,* which would confirm rather than *contradict* the student's claim and should therefore be eliminated. Choice (B) mentions *the temperature of the atmosphere* but does not address *solar radiation* or *ground temperature,* so this answer can be eliminated. Choice (C) should be kept because it specifically contradicts the student's claim with these lines: *Owing to the clouds and dust floating in the atmosphere, this heat is probably only about a third of that derived by using Langley's solar constant.* In other words, the floating particles block the sun's full energy. Choice (D) refers only to the table, not to conceptual information regarding the sun's radiation, so it too can be eliminated. The correct answer is (C).

23. **B** The question asks about the importance of the atmosphere as it influences the temperature of the earth. Use the given line reference to find the window. The relevant information is here: *the atmosphere may act like the glass of a green-house, letting through the light rays of the sun relatively*

easily, and absorbing a great part of the dark rays emitted from the ground, and it thereby may raise the mean temperature of the earth's surface. A second purpose is cited here: *the atmosphere acts as a heat store placed between the relatively warm ground and the cold space, and thereby lessens in a high degree the annual, diurnal, and local variations of the temperature.* In other words, the atmosphere plays a crucial role in allowing certain heat in and trapping that heat so it influences ground temperature. Choice (A) is extreme in its use of the word *all*, particularly given that the text indicates that much of the heat is transferred back out of the atmosphere. Eliminate (A). Choice (B) should be kept because it captures the ideas from both quotations without overstating. Choice (C) can be eliminated because it neglects the role of solar radiation. Choice (D) can be eliminated because the words *free passage* are extreme—the passage indicates that the atmosphere absorbs *a great part of the dark rays emitted from the ground*. The correct answer is (B).

24. **D** The question asks why the author uses the word *green-house* to describe the effects in this passage. Use the given line reference to find the window. The relevant information is here: *like the glass of a green-house, letting through the light rays of the sun relatively easily, and absorbing a great part of the dark rays emitted from the ground*. In other words, the atmosphere is like a greenhouse in that it lets in more heat than it lets out. Choice (A) may be partially true (though it is extreme in its use of the word *only*), but it does not match the prediction because it does not answer the question as to why the word *green-house* is used. Eliminate (A). Choice (B) can also be eliminated because it neglects the role of solar radiation entirely. Choice (C) is deceptive in that it applies the term *green-house* literally rather than figuratively. Eliminate (C). Choice (D) matches well with the prediction and captures both the idea of solar radiation and the atmosphere's role in absorbing it. The correct answer is (D).

25. **D** The question asks which of the answers can be supported by the quoted statement and its surrounding context. Use the given line reference to find the window. Read the quotation carefully—the word *principally* indicates that most but not all of this energy comes from solar radiation. Choice (A) states a version of this, but there is no indication in the quotation or the passage that clouds block out solar radiation entirely, nor that ground heat does whatever heating solar energy cannot. Eliminate (A). Choice (B) correctly implies that heat can be generated by the sun and other sources, but this choice then goes on to state that the *heat is held in the atmosphere and released as cool air*, which is untrue. Eliminate (B). Choice (C) may seem plausible, but it overlooks the green-house effect described throughout this passage, which states that solar energy passes relatively unobstructed (not *partially absorbed*) into the earth's atmosphere. Eliminate (C). Choice (D) takes proper account of the word *principally* by stating that the heat in the atmosphere comes from the sun and other sources, and that heat may be generated from non-solar sources. The correct answer is (D).

26. **B** The question asks why the author uses a few particular words in this context. Use the given line reference to find the window. The conditional language here implies that many factors must be considered when performing the calculations mentioned in the window. Choice (A) overstates the confidence this language implies in the calculations, so this choice should be eliminated. Choice (B) is true, given the author's indication that the calculations will depend on mathematical formulas and constants in combination with some experimental observations. Choice (C) cannot be supported in the passage because it presumes the knowledge that the described calculations are setting out to find. Choice (D) identifies a harsh critique of earlier scientists where none is present in any part of the passage. Choice (D) can thus be eliminated. The correct answer is (B).

27. **A** The question asks why the author notes the observations of ground temperature. Using the chronology of previous questions, look for the lead words *observations* and *ground temperature* in the last paragraph. They appear in the last part of the last sentence: *assuming a corresponding decrease*

of 0.6°C per 100 meters, we find its temperature to be 46°C lower than that of the ground, and thus the mean temperature of the ground equal to 15°C, as it is according to observations. Taken as a whole, the phrase *as it is according to observations* implies an agreement between the calculated data and the data observed by measurement. In this sense, the author cites the observations as a way to show the correctness of his calculations. Choice (A) captures the importance of the *observations*, so this answer should be kept. Choice (B) would undermine the importance of the mathematical calculations, when in fact the mention of *observations* is used to show the value of mathematical calculations. Eliminate (B). Choice (C) cites a contemporary theory of climate change, one that is not identified in the passage itself, so (C) should be eliminated. Choice (D) can be eliminated because it does not address the importance of the *observations* cited in the question. The correct answer is (A).

28. **B** The question asks for a combination of information from the table and passage. The relevant information in the passage is indicated by the data *1000 gram-calories per square centimeter for 24 hours.* This refers to the *Loss of Heat* columns in the chart, which are given in this unit. A *Loss of Heat* of 300 corresponds to a temperature of approximately −40°C. However, as the passage indicates, the figures given in the chart indicate the temperature at an elevation of *7600 meters.* Therefore, for the numbers given in the chart, *we find its temperature to be 46°C lower than that of the ground.* In other words, when the temperature on the chart is −40°C, the temperature on the ground must be approximately 6°C, or 46°C warmer, which corresponds with (B). Choices (A) and (D) pull the number directly from the chart but do not account for the information in the passage. Choice (C) confuses the negative signs. The correct answer is (B).

29. **B** The question asks whether the table supports the author's claim regarding the atmosphere's *heat store*: *the atmosphere acts as a heat store placed between the relatively warm ground and the cold space.* This information is then expanded upon with the detail that *the higher the [atmospheric] layer, the lower is its temperature relatively to that of the ground.* Since this layer of atmosphere is located between the hot earth and cold space and the earth temperature gets colder with higher elevation, the loss of heat will be less as colder earth temperatures come nearer to space temperatures. Despite this technical explanation, this question can be answered with aggressive POE, particularly by looking at the explanation rather than the "Yes" and "No" component of each answer. Choice (A) can be eliminated because it states that heat loss decreases at larger intervals at lower temperatures, which is not true. For each twenty-degree temperature interval, the heat-loss intervals shrink. In other words, whereas the heat loss at temperatures 100°C and 80°C goes down approximately 400, the heat loss at temperatures −100°C and −120°C goes down only 37. Choice (B) should be kept because it correctly establishes this relationship. Choices (C) and (D) can be eliminated because they cite incorrect relationships between temperature and loss of heat. The correct answer is (B).

30. **C** The question asks for a piece of information that will support the conclusion in the previous question. Because this is the second question in a paired set, it can be done in tandem with Q29. Choice (A) shows a widening gap between two heat-loss values, but it does not show the *smaller and smaller intervals* mentioned in (29B). Eliminate (A). Choice (B) shows large intervals in heat-loss values, which make it difficult to form any conclusion. Eliminate (B). Choice (C) shows adjacent heat-loss values that decrease at *smaller and smaller intervals*, so keep this choice. Choice (D) shows decreasing values, but these are random and cannot be used to support a conclusion. Eliminate (D). The correct answer is (C).

31. **D** The question asks whether the temperature of the atmosphere varies relative to the distance from the ground. The chart does show variations in temperature, but it does not show variations in height. Therefore, the answer cannot be gleaned from the table alone and must be more explic-

itly stated within the passage. Choice (C) does hypothesize that temperatures may be different at the ground and at certain heights, but it does not offer conclusive proof and thus should be eliminated. Choice (D) offers conclusive proof of the relationship: *we find its temperature to be 46°C lower than that of the ground*. Choices (A) and (B) can be eliminated because they do not discuss different distances from the earth. The correct answer is (D).

32. **B** The question asks about the main purpose of the passage. Because this is a general question, it should be done after all the specific questions. In a previous window, Douglass refers to his *early connection with the cause* as well as *having been called upon to do so by one whose voice in this Council we all gladly obey*. Now look for an answer choice that best fits these reasons. Choice (A) reflects a statement in paragraph 2 (*Men have very little business here as speakers, anyhow*), but does not fit the prediction. Choice (B) is consistent with the prediction. Choice (C) does not have support in the passage, which explicitly states that *our cause has passed beyond the period of arguing*. Choice (D) reflects a statement in paragraph 2 (*I say of her, as I say of the colored people, "Give her fair play, and hands off"*), but does not fit the prediction. The correct answer is (B).

33. **A** The question asks for the central claim of the passage. Because this is a general question, it should be done after all the specific questions. Choice (A) has support in paragraph 1 and several points of paragraph 2. Choice (B) contradicts the passage, which says that men *can neither speak for her, nor vote for her, nor act for her*. Choice (C) has support in the end of paragraph 3. Choice (D) slightly contradicts the passage, which indicates that the suffrage movement has become less obscure. It could be true that it should become even less obscure, but the passage doesn't say this, and so this cannot be the passage's central claim. Having eliminated (B) and (D), compare (A) and (C). Since (C) has less support, it is less likely to be the central claim. Eliminate (C). The correct answer is (A).

34. **D** The question asks why Douglass uses the word *cause* throughout the passage. To answer it, find each time the word *cause* appears and take note of what Douglass is doing in each case. The first time, in paragraph 2, Douglass explains why he is speaking at this convention, and refers to his *early connection to the cause*. The second time, also in paragraph 2, he refers to the history of *this woman suffrage cause*. The third time, in paragraph 3, he refers to the convention of women and uses the phrase *our cause*. Putting these ideas together, it is clear that Douglass uses the word *cause* to refer to the women's suffrage movement. Now look for an answer choice that best fits this prediction, and eliminate answer choices that are either false, or true for only one instance of *cause*. (Remember, the question asks how Douglass uses the word *throughout* the passage.) Choice (A) could be true, since it refers to his early connection, but this better fits the first two uses of the word *cause*. Choice (B) goes beyond the scope of the passage: Douglass is not explaining why the movement deserves support; he assumes that it does, and that it is already clear to most people in attendance that it does. Eliminate (B). Choice (C) does not fit any of the uses of the word *cause*. Eliminate (C). Choice (D) could be true, since in each of the three uses of the word *cause*, Douglass is referring to the suffrage movement. Compare (A) and (D). Choice (D) more directly supports all three instances of *cause*. The correct answer is (D).

35. **B** The question asks why *Douglass is hesitant to speak at the gathering*. Use lead words and the order of the questions to find the window. Q35 is the first specific question, and Q38 asks about line 29, so scan the beginning of the passage looking for statements about being hesitant to speak. In lines 8–14, Douglass says, *When I look around on this assembly, and see the many able and eloquent women, full of the subject, ready to speak, and who only need the opportunity to impress this audience with their views…I do not feel like taking up more than a very small space of your time and attention*. In lines 18–23 he says, *Men have very little business here as speakers…For this is an International Council, not of men, but of women, and woman should have all the say in it*.

Eliminate answer choices that don't match the passage. Choice (A) is a Right Words, Wrong Meaning trap answer: Douglass says, *I would not, even now, presume to speak, but for the circumstance of my early connection with the cause.* In other words, his *early connection* with the suffrage movement is what motivates him to speak, not what makes him hesitant. Eliminate (A). Keep (B) because it matches the passage. Choice (C) is a Right Words, Wrong Meaning trap answer: Douglass states that women can speak with more *skill* and *power* than men on the subject of woman suffrage, but he doesn't indicate that *he does not consider himself an eloquent and forceful speaker.* Eliminate (C). Choice (D) is another Right Words, Wrong Meaning trap answer: Douglass says that if men *come here at all they should take back benches and wrap themselves in silence,* but this is a rhetorical device to emphasize his point that women should be featured at this event. He doesn't literally mean that it is *improper to speak from the back benches.* Eliminate (D). The correct answer is (B).

36. **C** The question asks about men according to the passage. Because this is the first question in a paired set, it can be done in tandem with Q37. Consider the answers for Q37 first. In (37A), Douglass says that he doesn't want to take *more than a very small space of...time and attention.* While this could support (36B), it doesn't indicate what Douglass thinks about men in general. Eliminate (37A). Choice (37B) talks about how he ended up speaking at the gathering, which doesn't support any of the answers from Q36. Eliminate (37B). Choice (37C) says that *men have very little business here as speakers* and that they should *take back benches and wrap themselves in silence.* This supports men *primarily listening,* so connect it to (36C). Choice (37D) does not support any of the answers for Q36, so eliminate it. The only possible pair remaining is (36C) and (37C). The correct answers are (36C) and (37C).

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

38. **A** The question asks how the *demands of women* in line 29 are related to some kind of injuries. Use the given line reference to find the window. Douglass says that woman *knows and feels her wrongs as man cannot,* and *she also knows...what measures are needed to redress them.* Look for an answer choice that fits this prediction. Choice (A) paraphrases it, so keep it. Choice (B) can be eliminated because Douglass does not argue for men to speak about these injuries. Choice (C) can be eliminated because there is no evidence anywhere that the *world should support* injuries to women. Choice (D) may be true, but it doesn't fit the prediction. The correct answer is (A).

39. **B** The question is the best evidence question in a paired set. Because Q39 was a specific question, simply look at the lines used to answer Q39. Lines 32–34 were used to answer the previous question. The correct answer is (B).

40. **D** The question asks for the meaning of the word *cradle,* which the passage uses figuratively. Use the given line reference to find the window. *It was when this woman suffrage cause was in its cradle, when it was not big enough to go alone, when it had to be taken in the arms of its mother from Seneca Falls, N.Y., to Rochester, N.Y., for baptism.* Douglass is referring to the history of the movement, so the word *cradle* here means something like "its early years." Choices (A), (B), and (C) have nothing to do with this prediction; eliminate them. Choice (D) fits this prediction exactly. The correct answer is (D).

41. **A** The question asks what the *surprise* referred to in lines 58–74 serves to emphasize. Use the given line reference to find the window. Douglass says that people new to suffrage events *may be surprised that [speakers] do not argue the question* of whether their movement is valid. Look for an answer choice that fits this prediction. Choice (A) mirrors the prediction, so keep it. Choice (B) may be attractive because of the reference to *more arguments than assertions,* but the text does not explicitly say that the audience is male. Eliminate (B). Although the phrase *may not have*

expected might look good on its own, (C) as a whole clearly does not match the prediction. Eliminate (C) and (D) as well because the arguments weren't *unexpected*. It was the lack of arguments that was surprising. The correct answer is (A).

42. **C** The question asks for some positive aspect of fracking in Passage 1. Because this is the first question in a paired set, it can be done in tandem with Q43. Consider the answers for Q43 first. The lines in (43A) mention that the natural gas from fracking can *accommodate the country's domestic demand for natural gas at current levels of consumption for more than a hundred years*. These lines match with (42C), which paraphrases that information. Choice (43B) details the process of fracking but lacks anything specifically positive, so eliminate it. Choice (43C) completes the description of how fracking extracts natural gas from the shale layer, but the lines have no match in Q42, so (43C) can be eliminated. Like (43C), (43D) fails to support Q42 and can be eliminated, leaving (42C) and (43A) as the only possible pair. The correct answers are (42C) and (43A).

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

44. **D** The question asks why the author mentions the number of gallons in discussing fracking. Use the given line reference to find the window. *As many as 25 fracture stages (per horizontal leg) may be involved in preparing a single site for production, each requiring injection of more than 400,000 gallons of water—a possible total of more than 10 million gallons before the well is fully operational.* Phrases like *as many as* and *more than* are there to draw attention to the size and scale of these numbers. Choice (A) can be eliminated because *inevitable* is too extreme and because it does not address the size of the fracking operation. Choice (B) can be eliminated because this passage discusses a single method, fracking, and not a *variety of ways*. Choice (C) can be eliminated because while water might be described as a *basic element*, there is no indication that *only a few* of these basic elements are at play in fracking. Choice (D) should be kept because it reflects the language of the prediction. The correct answer is (D).

45. **A** The question asks why the author discusses the *aquifer* in the given lines. Use the given line reference to find the window. The passage states that *drillers developing a well must take exceptional care to minimize contact between the wellbore and the surrounding aquifer* and that *it is essential that monitoring be in place to ensure the continuing integrity of the seal isolating the well from the aquifer*. In both cases, the *aquifer* is mentioned as something that must be isolated and protected from the outflowing water used to frack. Choice (A) should be kept because it points to the *significant risk* that the aquifer could be contaminated. Choice (B) may address the concerns of those who worry about fracking, but it does not *dispute* those concerns, so (B) can be eliminated. Choice (C) can also be eliminated because the word *aquifer* does not appear before the final paragraph of Passage 1. Choice (D) can be eliminated because there is no indication that water contamination is a *new finding*. The correct answer is (A).

46. **B** The question asks what the word *integrity* means in line 44. Go back to the text, find the word *integrity*, and mark it out. Carefully read the surrounding text to determine another word that would fit in the blank based on the context of the passage. Earlier sentences refer to the need to *minimize contact between the wellbore and the surrounding aquifer* and to *failures to isolate the drilling liquids*. The correct answer should therefore mean something like "solidness," or "the opposite of leakiness." Choice (A) does provide one definition of the word *integrity*, but that definition does not agree with the prediction based on the context above, so (A) can be eliminated. Choice (B) matches the prediction, so it should be kept. Choice (C) may be deceptive because this paragraph discusses water at such length, but the word *moisture* does not match the prediction and should be eliminated. Choice (D) provides another possible definition of the word *integrity*, but that definition does not match the context, so (D) can be eliminated. The correct answer is (B).

47. **D** The question asks for some aspect of Passage 2's main idea—something negative, as evidenced by the contrast in the question. Because this is a general question, it should be done after all the specific questions for Passage 2. The first paragraph describes fracking's usefulness, but the remaining two paragraphs discuss its risks. The last paragraph is vicious in its criticism of *Weak safeguards and inadequate oversight*. In short, the author of Passage 2 sees the potential value of fracking, but he does not consider it to be regulated in a way that protects local populations. Choice (A) does not address safety, only cost, so this answer can be eliminated. Choice (B) could be true, but it is not addressed in the passage, so it can be eliminated. Choice (C) is mostly right but slightly wrong because while the author of Passage 2 does believe that industry executives flout the rules, there is no indication that these executives believe *they can mine resources from any place they choose*. This is extreme language that is not supported by the passage. Eliminate (C). Choice (D) effectively paraphrases the evidence presented in the passage. The correct answer is (D).

48. **C** The question asks what the word *oversight* most nearly means as it is used in line 80. Go back to the text, find the word *oversight*, and cross it out. Carefully read the surrounding text to determine another word that would fit in the blank based on the context of the passage. The text says, *Weak safeguards and inadequate oversight have allowed oil and gas producers to run roughshod over communities across the country with their extraction and production activities for too long...Our state and federal leaders have failed to hold them to account, leaving the American people unprotected. Many companies don't play by the few rules that do exist.* Therefore, the word *oversight* could be replaced by a word like "laws" or "governing." Eliminate answer choices that don't match the meaning of the word in context. *Error* doesn't match "laws," so eliminate (A). *Planning* doesn't match "laws," so eliminate (B). Keep (C) because *regulation* matches "laws." An *omission* is something that is neglected or left out; it doesn't match "laws," so eliminate (D). Note that (A) and (D) are Could Be True trap answers based on another meaning of *oversight* that is not supported by the text. The correct answer is (C).

49. **B** The questions asks about the relationship between the two passages. Because this is a general question, it should be done after all the specific questions for both passages. Passage 1 gives an overview of the process of fracking and hints at some of its dangers. Passage 2 is primarily concerned with these dangers and is less admiring of fracking's ability to extract natural resources. Choice (A) can be eliminated because Passage 1's author is not blind to the dangers of fracking and his attitude could not be described as *optimistic confidence*. Choice (B) should be kept because it offers a reasonable paraphrase of the relationship between the two passages. Choice (C) can be eliminated because there is no indication that the author of Passage 1 would disapprove of any particular regulations. Choice (D) can also be eliminated because Passage 2 is less concerned with the process of fracking than is Passage 1. The correct answer is (B).

50. **C** The question asks how the author of Passage 2 might respond to the referenced lines in Passage 1, which discuss both the care that drillers must take to ensure that pollution does not occur and the risks associated with such pollution. Because this is the first question in a paired set, it can be done in tandem with Q51. Consider the answers for Q52 first. The lines in (51A) discuss the expansion of the mining industry. They have no connection to the answer choices in Q50, so (51A) can be eliminated. Choice (51B) discusses the proliferation of fracking. These lines match with (50A), which cites the mining industry's success and growth, but the pair fails to account for how critically the author of Passage 2 would respond. Eliminate (50A) and (51B). The lines for (51C) refer in a general way to increased industrial production, but they do not address the risks of drilling in particular. Choice (51C) can be eliminated because it does not match with any of the answers in Q50. Choice (51D) matches almost exactly with (50C), so these two answers should be connected. The correct answer is (C).

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

52. **C** The question asks for something that is *implicit* (or implied) in Passage 2 and *explicit* (or stated outright) in Passage 1. Consider each answer separately and use POE. Choice (A) can be eliminated because Passage 2 explicitly states that fracking causes air and water pollution, and Passage 1 is concerned only with water pollution. Choice (B) can be eliminated because Passage 2 mentions the *millions of gallons of water used in fracking operations* but doesn't give any indication that it could also be *billions*. Passage 2 also focuses on the effects of fracking rather than the process. Choice (C) should be kept because Passage 2 addresses the effects of fracking on drinking water but does not specifically mention animals, whereas Passage 1 states explicitly, *Serious problems have arisen...including cases where well water used for drinking became so contaminated that human and animal health was threatened.* Choice (D) can be eliminated because neither passage addresses the costs in setting up wells for drilling. The correct answer is (C).

Section 2: Writing and Language

1. **A** The number of words changes in the answer choices, so this question tests concision. Check the shortest answer first: (A) gives a precise meaning to the sentence, so keep it. Choices (B), (C), and (D) are repetitive because they all include both *variety* and a form of *different*, which mean the same thing in this context, so eliminate (B), (C), and (D). The correct answer is (A).

2. **B** The wording of the phrase changes in the answer choices, so this question tests consistency and precision. The answer choices mostly express the same idea, so look for the option that is most consistent in style and tone with the passage. The phrase *something elusive* in (C) is not precise, so eliminate (C). The phrases *the okay* and *the thumbs up* in (A) and (D) are too informal for the passage, so eliminate (A) and (D). Keep (B) because *broader public acceptance* gives a precise meaning to the sentence and is consistent with the formal tone of the passage. The correct answer is (B).

3. **C** Verbs change in the answer choices, so this question tests consistency of verbs. A verb must be consistent with its subject. The subject of the verb is *characteristic movements*, which is plural. To be consistent, the underlined verb must also be plural. Eliminate (A) and (B) because they are singular. Eliminate (D) because it makes the sentence incomplete. The correct answer is (C).

4. **B** Note the question! The question asks whether a sentence should be added, so it tests consistency. If the content of the new sentence is consistent with the ideas surrounding it, then it should be added. The paragraph discusses *hippotherapy* and how it *uses the movement of the horse as a way to treat a specific ailment*. The new sentence describes *therapeutic horseback riding* in comparison to *hippotherapy*. The previous sentence explains hippotherapy's *main difference from therapeutic horseback riding*, and the following sentence explains what one treatment is *more concerned with* as a comparison. The new sentence is consistent with the comparison between hippotherapy and therapeutic horseback riding, so it should be added. Eliminate (C) and (D). Eliminate (A) because the new sentence does not *make the argument* that one therapy is *more effective*. Choice (B) is consistent because both the paragraph and the new sentence are about *the difference between the two disciplines*. The correct answer is (B).

5. **B** Note the question! The question asks which choice *provides a supporting example that reinforces the main point of the sentence*, so it tests consistency. Eliminate answers that are inconsistent with the purpose stated in the question. The paragraph is about how *many fields use the basic tenets of hippotherapy*. The previous sentence explains that *physical therapists* use hippotherapy *to manage...*

disabilities. This sentence discusses how *occupational therapists* use hippotherapy. To be consistent with the previous sentence, this sentence needs to explain occupational therapists' purpose for using hippotherapy. Look for an answer choice that is consistent with the discussion of why people use hippotherapy. Eliminate (A) because *lack of laboratory support* is not consistent with the idea of why hippotherapy is used. Keep (B) because *to develop…skills* explains a reason for using hippotherapy. Eliminate (C) because what therapists *work on* is not consistent with the purpose for hippotherapy. Eliminate (D) because the *backgrounds* (of the therapists) is not consistent with their purpose for using hippotherapy. The correct answer is (B).

6. **D** Verbs change in the answer choices, so this question tests consistency. A verb must be consistent with its subject and with the other verbs in the sentence. The subject of the sentence is *therapists*; all answer choices are consistent with the subject. The other verb in the sentence is *achieve*, which is in present tense. To be consistent, the underlined verb must also be in present tense. Eliminate (A), because *recommended* is past tense. Eliminate (B) and (C) because *recommending* is not consistent with *achieve*. Choice (D) appropriate uses the present tense *recommend*. The correct answer is (D).

7. **C** Note the question! The question asks where sentence 5 should be placed, so it tests consistency of ideas. The sentence must be consistent with the ideas that come both before and after it. Sentence 5 says that *as the name suggests, these therapists are concerned mainly with…physical aspects*. The word *these* means that it must come after some mention of the therapists. Since the sentence refers to *the name* and *physical aspects*, *these therapists* must refer to *physical therapists*. *Physical therapists* are mentioned in sentence 2, so this sentence should be placed after sentence 2. The correct answer is (C).

8. **B** Punctuation changes in the answer choices, so this question tests how to connect ideas with the appropriate punctuation. The first part of the sentence, *Because the discipline is relatively new*, is not an independent clause. The second part, *certified hippotherapists have stringent requirements for staying current on the research within the field*, is an independent clause. Eliminate (D) because a semicolon can only be used between two independent clauses. Eliminate (C) because a comma followed by the word *and* can also only be used between two independent clauses. Eliminate (A) because the word *certified* describes *hippotherapists*, so there should not be a comma between the two. The correct answer is (B).

9. **B** The wording of a comparison changes in the answer choices, so this question tests idioms. The non-underlined portion contains the phrase *just as*. The correct form of this idiom is *just as… so too*. Eliminate (A), (C), and (D) because they do not contain the phrase *so too*. The correct answer is (B).

10. **D** Prepositions change in the answer choices, so this question tests idioms. Look at the words before and after the underlined portion to determine the correct idiom. Eliminate (B) because *skeptics* are not *above doctors and researchers*. Eliminate (A) because the word *between* implies that *skeptics* are a separate group than *doctors and researchers*, which does not make the meaning of the sentence clear. Choice (C), *within*, implies that the *skeptics* are physically inside the *doctors and researchers*, which also doesn't make the meaning of the sentence clear. Eliminate (C). Choice (D), *among doctors and researchers*, provides a precise meaning to the sentence. The correct answer is (D).

11. **B** Note the question! The question asks which choice *restates the main argument of the passage*, so it tests consistency of ideas. Determine the subject of the passage and find the answer that is consistent with that idea. The passage is about hippotherapy, a *relatively new* discipline, and its uses and benefits. Eliminate (A) because the passage's *main argument* is not that *becoming a*

hippotherapist is pretty hard. Choice (B) is consistent with the question and the main argument of the passage because the author explains how hippotherapy can *provide relief* in a new way, so keep (B). Eliminate (C) because the passage is about hippotherapy, not *bloodletting and radiation*. Eliminate (D) because *crazy discovery* is not consistent with the author's position in favor of hippotherapy. The correct answer is (B).

12. **B** Vocabulary changes in the answer choices, so this question tests precision of word choice. Look for a word with a definition that is consistent with the other ideas in the sentence. The two options in the answer choices are *elicit* and *illicit*. The word *elicit* is a verb that means "to bring out." The word *illicit* is an adjective that means "unlawful." The underlined portion needs to be a verb, not an adjective, as the *responses* are not described as being "unlawful." Eliminate (C) and (D) because *illicit* is not a verb. The difference between (A) and (B) is the verb, so the question also tests consistency of verbs. A verb must be consistent with its subject. The subject of the sentence is *the way*, which is singular. To be consistent, the underlined verb must also be singular. Eliminate (A) because *elicit* is plural. The correct answer is (B).

13. **D** The length of the phrase surrounding *Marco Polo* changes in the answer choices, so this question could test concision. Choice (B) is the shortest option, but it makes the first part of the sentence, *Marco Polo crossed the desert on his way to China*, an independent clause. The second part of the sentence, *he described the sound he heard as "a variety of musical instruments,"* is also an independent clause. A comma alone cannot be used between two independent clauses, so eliminate (B). Choices (A) and (C) also make the first part of the sentence an independent clause, so eliminate (A) and (C). In (D), the first part of the sentence, *As Marco Polo crossed the desert on his way to China*, is not an independent clause. A comma can be used to separate the two parts of the sentence in (D). The correct answer is (D).

14. **A** Punctuation changes in the answer choices, so this question tests how to connect ideas with the appropriate punctuation. The first part of the sentence, *Researchers now understand that the curious sound that Polo heard, that odd confluence of pipe organ and cello*, is not an independent clause. The second part of the sentence, *probably resulted from the wind blowing across the sand dunes*, is also not an independent clause. Eliminate (B) because a semicolon can only be used between two independent clauses. Eliminate (C) and (D) because both a dash and a colon must come after an independent clause. Choice (A) correctly uses a comma after the phrase *that odd confluence of pipe organ and cello*. The correct answer is (A).

15. **A** Punctuation and words change in the answer choices, so this question tests how to connect ideas with the appropriate punctuation. The first part of the sentence, *This variation creates an effect similar to that of a musical instrument*, is an independent clause. In (A) and (B), the second part of the sentence is *a tonal quality coming from the trapping and release of certain frequencies*, which is not an independent clause. Choice (A) correctly connects these ideas with a comma, so keep it. Eliminate (B) because a semicolon can only be used between two independent clauses. In (C), the second part of the sentence, *a tonal quality that is said to be coming from the trapping and release of certain frequencies*, is not an independent clause. This answer choice correctly connects these ideas with a comma. However, (C) uses more words than (A) but does not make the sentence more precise. Eliminate (C) because it is not as concise as (A). In (D), the second part of the sentence, *this quality comes from the trapping and release of certain frequencies*, is an independent clause. Two independent clauses must be connected by some type of punctuation other than a comma, so eliminate (D). The correct answer is (A).

16. **C** Note the question! The question asks which choice *most smoothly and effectively introduces the writer's discussion of the sounds of the ocean*, so it tests consistency. Eliminate answers that are

inconsistent with the purpose stated in the question. There is also the option to DELETE; consider this choice carefully as it is often the correct answer. The second sentence in the paragraph says *this body of water*. Deleting the underlined sentence would make *this body of water* not refer back to anything, so the sentence should not be deleted. Eliminate (D). Choices (A), (B), and (C) all refer to the *"voice"* of *the ocean*, so choose the most concise and *smooth* option. Choice (C) is the most concise option and gives the sentence a precise meaning, so eliminate (A) and (B). The correct answer is (C).

17. **C**   Note the question! The question asks whether a sentence should be added, so it tests consistency. If the new sentence is consistent with the ideas surrounding it, then it should be added. The paragraph discusses *sounds* in *the ocean* and mentions *deep-sea sound-recording*. The new sentence is about sound but focuses on the lack of sound in the ocean, which is inconsistent with the paragraph's point that there is sound in oceans. Thus, the sentence should not be added. Eliminate (A) and (B). Keep (C) because it accurately states that the sentence *undermines the argument*. Eliminate (D) because the sentence would not *be more appropriately placed at the beginning of the paragraph*. The correct answer is (C).

18. **A**   Apostrophes change in the answer choices, so the question tests apostrophe usage. When used with a pronoun, an apostrophe indicates a contraction. *It's* is equal to "it is," which is not necessary in this sentence; eliminate (B). *They're* is equal to "they are," which is not necessary in this sentence; eliminate (D). Both (A) and (C) are possessive pronouns. A pronoun must be consistent in number with the noun it refers to. The underlined portion refers to *the sound of the ocean*, which is singular. In order to be consistent, the underlined pronoun must also be singular. Eliminate (C) because *their* is plural. The correct answer is (A).

19. **B**   Words change in the answer choices, so this question tests precision. Look for a phrase that provides the most precise meaning. Choice (A) is not precise because it doesn't indicate what would be *weird* about the sounds. Eliminate (A). Keep (B) because it provides a precise meaning about what the *sound of the ocean* is unwilling to do. Eliminate (C) because the phrase *be normal* is not precise. Eliminate (D) because the words *play* and *others* are imprecise when discussing *the ocean*. The correct answer is (B).

20. **D**   Note the question! The question asks which choice *offers the most accurate interpretation of the data in the chart*, so it tests consistency. Read the labels on the graph carefully, and choose an answer that is consistent with the information given in the graph. The solid line shows the number of whales migrating each day in 2012–13, while the dotted line shows the average number per day for the previous ten years. The lines generally follow the same pattern, so it is not true that there is a *lack of any consistency* or an *inverse relationship*; eliminate (A) and (B). The lines do not match exactly, so eliminate (C). The solid line is much higher at some points than the dotted line is, so (D) is consistent with the graph. The correct answer is (D).

21. **A**   Note the question! The question asks which choice *offers an accurate interpretation of the data in the chart*, so it tests consistency. Read the labels on the graph carefully, and choose an answer that is consistent with the information given in the graph. Keep (A) because the number indicated by the solid line, which shows the number of whales migrating in 2012–13, is *more than twice* the number indicated by the dotted line, which shows the ten-year average, at a number of points in December, March, and April. Choice (A) is consistent with the graph. Eliminate (B) because the solid line is never *ten times* the dotted line. Eliminate (C) because the solid line is never *less than half* of the dotted line. Eliminate (D) because the graph does not show *the number of shorebirds migrating*. The correct answer is (A).

22. **A** Note the question! The question asks which choice offers *a conclusion that points toward the role that sound might play in future research into different ecosystems*, so it tests consistency. Eliminate answers that are inconsistent with the purpose stated in the question. Keep (A) because the phrase *may clarify* suggests *future research*. Eliminate (B) because it talks about the past, not the *future*. Eliminate (C) and (D) because they don't mention anything related to *future research*, so they are inconsistent with the purpose stated in the question. The correct answer is (A).

23. **D** Punctuation changes in the answer choices, so this question tests how to connect ideas with the appropriate punctuation. The first part of the sentence, *In the 1932 presidential election, up-and-comer Franklin D. Roosevelt won*, is an independent clause. The second part of the sentence, *in a landslide over the incumbent Herbert Hoover, who had done little to avert the crisis that would become known as the Great Depression*, is not an independent clause. Eliminate (B) because a semicolon can only be used between two independent clauses. Eliminate (A) and (C) because there is no reason to break up the phrase *won in a landslide*. The correct answer is (D).

24. **C** Transitions change in the answer choices, so this question tests consistency of ideas. There is also the option to DELETE; consider this choice carefully as it is often the correct answer. Deleting the transition makes the sentence *Hoover took office in 1929, the unemployment rate was a mere 3.2%*. This does not work because the sentence contains two independent clauses separated by only a comma. Eliminate (D) and evaluate the transitions. A transition must be consistent with the relationship between the ideas it connects. Eliminate (A) because the word *and* would indicate that this sentence is making a similar point to the one made in the previous sentence, which is not the case. Eliminate (B) because there is not a causal relationship between Hoover taking office and the low unemployment rate. *When* is consistent with the year *1929* in the non-underlined portion of the sentence. The correct answer is (C).

25. **A** Note the question! The question asks which choice *most effectively sets up the paragraph*, so it tests consistency of ideas. Determine the subject of the paragraph and find the answer that is consistent with that idea. The paragraph draws a contrast with *even so* and states that *no one was quite ready* for the period that was called *Roosevelt's "100 Days."* Look for an answer choice that is consistent with this idea and the contrasting transition *even so*. Keep (A) because the idea that Roosevelt had *a clear mandate* is a contrast with the fact that *no one was quite ready*. Eliminate (B) because it is too general a statement to introduce the paragraph. Eliminate (C) and (D) because they both refer to the previous paragraph but do not mention anything about *Roosevelt*, who is the focus of this paragraph. The correct answer is (A).

26. **C** Transitions change in the answer choices, so this question tests consistency of ideas. A transition must be consistent with the relationship between the ideas it connects. The first part of the sentence states that *he sent government workers to inspect each bank*, and the second part of the sentence says *determining which banks would be safe and sustainable to reopen*. The two ideas agree, and the second part of the sentence is an explanation of what the workers were doing. Eliminate (A) because *although* is a contrasting transition. Eliminate (B) because *for* cannot be used after a comma unless the sentence contains two independent clauses, and the second part of this sentence is not an independent clause. Keep (C) because *thereby* means "through this method," which fits with the meaning of the sentence. Eliminate (D) because *whereupon* means "at this point in time," which is not consistent with the relationship between the parts of the sentence. The correct answer is (C).

27. **B** Note the question! The question asks which choice *provides the most specific information on the areas that Roosevelt hoped to stimulate*, so it tests consistency. Eliminate answers that are inconsistent with the purpose stated in the question. Eliminate (A) because *economy* doesn't explain any

specific areas. Keep (B) because *industrial and agricultural sectors* are *specific areas.* Eliminate (C) because *whole thing* is not a *specific area.* Eliminate (D) because *money flowing and the economy* are not *specific areas.* The correct answer is (B).

28. **C**   Prepositions change in the answer choices, so this question tests idioms. Look at the phrase before the preposition to determine the correct idiom. Use POE, and guess if there is more than one answer left. Eliminate (B) and (D) because *level on* and *level to* are not correct idioms. Eliminate (A) because while *level with* is an idiom, it means "be honest with," and *leveling with* is something that could be done to a person, not to a *demand,* so it is inconsistent with the meaning of the sentence. *Level off* means "stop increasing," so keep (C) because it is consistent with the meaning of the sentence. The correct answer is (C).

29. **C**   Note the question! The question asks which choice *gives an additional supporting detail that emphasizes the importance of the TVA in Roosevelt's larger economic project,* so it tests consistency. Eliminate answers that are inconsistent with the purpose stated in the question. Eliminate (A) because the explanation of different states does not *emphasize the importance* of the TVA. Eliminate (B) because the fact that farming *is difficult* does not *emphasize the importance* of the TVA. Keep (C) because *electricity for millions of Americans* does *emphasize the importance* of the TVA. Eliminate (D) because the idea that the TVA was *impressive* does not provide a specific *detail* on the TVA's importance. The correct answer is (C).

30. **B**   The length of the phrase changes in the answer choices, so this question tests concision. Start with the shortest option. Choice (B) makes the meaning of the sentence precise, so keep it. Choices (A), (C), and (D) all contain phrases that mean the same thing as *future,* so they are all redundant. Eliminate (A), (C), and (D). The correct answer is (B).

31. **A**   Pronouns change in the answer choices, so this question tests consistency of pronouns. A pronoun must be consistent in number with the noun it refers to. The underlined pronoun refers to *Roosevelt's "New Deal,"* which is singular. To be consistent, the underlined portion must also be singular. Eliminate (C) because *they* is a plural pronoun. Eliminate (D) because *there* is a directional word that is not consistent with the meaning of the sentence. Apostrophes also change in the answer choices, so this question also tests apostrophe usage. *It's* is a contraction of *it is,* which works in this sentence, so keep (A). Eliminate (B) because it incorrectly uses the possessive pronoun *its.* The correct answer is (A).

32. **A**   Apostrophes change in the answer choices, so this question tests apostrophe usage. When used with a noun, an apostrophe indicates possession. In this sentence, *day-to-day lives* belong to *people,* so an apostrophe is needed. Eliminate (C). Eliminate (D) because *peoples's* is not a word that occurs in English. Eliminate (B) because the word *people* is already plural, and choice (B) incorrectly suggests that the lives belong to *peoples* instead of *people.* The correct answer is (A).

33. **C**   Note the question! The question asks which choice would *conclude the paragraph effectively without dismissing the debate described in this paragraph,* so it tests consistency. Eliminate answers that are inconsistent with the purpose stated in the question. The paragraph discusses *controversy* related to *Roosevelt's 100 Days* and says that there is *criticism,* but other people see the program as *a model.* Eliminate (A) because the phrase *unadulterated successes* contradicts the *debate* mentioned in the paragraph. Eliminate (B) because the phrase *obvious failures* is inconsistent with the idea of not *dismissing the debate.* Keep (C) because the phrase *in either case* acknowledges the *debate.* Eliminate (D) because stating that *both sides are obviously unfounded* dismisses the debate, which is the opposite of the question's goal.

34. **D** The length of the phrase changes in the answer choices, so this question tests concision. Choice (D) is the shortest option, and it gives a precise meaning to the sentence, so keep (D). Choices (A), (B), and (C) all express similar ideas but are all less concise than (D). Eliminate (A), (B), and (C). The correct answer is (D).

35. **B** Transitions change in the answer choices, so this question tests consistency of ideas. A transition must be consistent with the relationship between the ideas it connects. The first part of the sentence says that *The Japanese film industry had divided loyalties*, and the second part of the sentence mentions *its obvious debt to American cinema* and *international tensions*. These ideas agree, so eliminate (A) and (C) because they both contain contrasting transitions. Keep (B) because the second part of the sentence provides *evidence* for the claim that the industry had *divided loyalties*. Eliminate (D) because the second part of the sentence is not what *enabled* the *divided loyalties*. The correct answer is (B).

36. **D** Note the question! The question asks whether a phrase should be deleted, so it tests consistency. If the content of the phrase is not consistent with the ideas surrounding it, then it should be deleted. The paragraph describes *divided loyalties* and *international tensions*, and the underlined portion explains how the movie used American conventions to lead to *propaganda* for the war. This idea is consistent with the rest of the paragraph, so the phrase should be kept. Eliminate (A) and (B). Eliminate (C) because *propaganda* is mentioned, but a *specific example* is not provided. Keep (D) because the phrase does *clarify an idea central to this paragraph*. The correct answer is (D).

37. **D** Verbs change in the answer choices, so this question tests consistency of verbs. A verb must be consistent with its subject and with the other verbs in the sentence. The subject of the verb is *various family members*; all answer choices are consistent with the subject. This part of the sentence describes a movie, and the other verbs, *plays* and *is torn*, are in present tense. To be consistent, the underlined verb must also be in present tense. Eliminate (A), (B), and (C) because they are not present tense verbs. The correct answer is (D).

38. **A** Transitions change in the answer choices, so this question tests consistency of ideas. A transition must be consistent with the relationship between the ideas it connects. The previous sentence explains what Hara could do well as an actor. This sentence explains how her beauty *kept screen audiences…engaged*. The ideas agree, so eliminate (C) and (D) because *nevertheless* and *meanwhile* are contrasting transitions. Keep (A) because *moreover* is used to add on to a previous idea, and the second sentence does add on to the first. Eliminate (B) because *in sum* is used for a conclusion, and this sentence is an additional point rather than a conclusion. The correct answer is (A).

39. **B** The length of the phrase changes in the answer choices, so this question tests concision. Start with the shortest option. Choice (B) makes the meaning of the sentence precise, so keep it. Eliminate (A) and (D) because the whole passage is about *films*, so there is no need to repeat that idea. Eliminate (C) because the sentence already uses the word *particular*, which means the same thing as *unique to her*. The correct answer is (B).

40. **C** Commas change in the answer choices, so this question tests comma usage. The sentence contains a list of four things: 1) *office*, 2) *kitchen*, 3) *living room*, and 4) *garden*. There should be a comma after each item in the list. Eliminate (A) because it does not have a comma after *office*. Eliminate (B) because it has a comma after *living* but *living room* is one idea. Keep (C) because it has a comma after each item in the list. Eliminate (D) because it does not have a comma after *kitchen*. The correct answer is (C).

41. **D** Vocabulary changes in the answer choices, so this question tests precision of word choice. Look for a word with a definition that is consistent with the other ideas in the sentence. The word *council* means "a committee of people advising," whereas *counsel* means "advice." The underlined portion should mean "advice" *of her friends and family* as there is no evidence that these people formed a "committee." Eliminate (A) and (B) because they do not mean "advice." Prepositions also change in the answer choices, so this question also tests idioms. Look at the word before the preposition to determine the correct idiom. Use POE, and guess if there is more than one answer left. The phrase *counsel with* means "to talk to someone," but the underlined portion refers to a noun—the advice of *her friends and family*. Eliminate (C). The phrase *counsel of* means "advice of," which is consistent with the meaning of the sentence. The correct answer is (D).

42. **D** Transitions change in the answer choices, so this question tests consistency of ideas. A transition must be consistent with the relationship between the ideas it connects. The first part of the sentence says *The conflict and plot are that simple*, and the second part of the sentence mentions *profound implications*, which is a contrast with something being simple. Eliminate (A), (B), and (C) because they are all same-direction transitions. Choice (D), *yet*, is a contrasting transition. The correct answer is (D).

43. **A** Pronouns change in the answer choices, so this question tests consistency of pronouns. A pronoun must be consistent in number with the noun it refers to. The underlined pronoun refers to *viewers*, which is plural. To be consistent, the underlined pronoun must also be plural. Eliminate (B) and (C) because they are not plural. Choice (A), *their*, is a plural pronoun, so keep it. Choice (D), *your*, could be plural, but it cannot be used to refer to *viewers*. Eliminate (D). The correct answer is (A).

44. **B** Note the question! The question asks where a sentence should be added, so it tests consistency of ideas. The sentence must be consistent with the ideas that come both before and after it. The phrase *others believe* suggests that this sentence must come after a previous belief was mentioned. Sentence 3 explains what *some believe*, so the new sentence should come after that. The correct answer is (B).

Section 3: Math (No Calculator)

1. **A** The question asks about the graph of an equation in the xy-plane. One option is to get the equation into $y = mx + b$ form, where m is the slope and b is the y-intercept. The equation is almost in standard form $Ax + By = C$, though, for which the slope is $-\dfrac{A}{B}$. This equation becomes $-2x - 5y = 10$ in standard form, so $A = -2$ and $B = -5$. The slope is $-\dfrac{-2}{-5} = -\dfrac{2}{5}$. Eliminate (B) and (D), which say that the slope is positive. The y-intercept in standard form is $\dfrac{C}{B}$, and C is 10. The y-intercept is $\dfrac{10}{-5} = -2$. Eliminate (C). The correct answer is (A).

2. **A** The question asks for the value of an expression. There is no obvious way to get the equations into the requested form of $x - y$, so solve for the variables individually. Multiply one equation by

a constant that will make a variable disappear when the equations are added together. Multiply the second equation by 3 to get $9x - 3y = 51$. Stack and add the two equations:

$$\begin{array}{r} x + 3y = 9 \\ + \quad 9x - 3y = 51 \\ \hline 10x \quad\quad = 60 \end{array}$$

Divide both sides of the equation by 10 to get $x = 6$. Plug this value into the first equation to get $6 + 3y = 9$. Subtract 6 from both sides to get $3y = 3$. Divide both sides by 3 to get $y = 1$. The value of $x - y$ is $6 - 1 = 5$. The correct answer is (A).

3. **D** The question asks for an equivalent form of an expression. There are variables in the answer choices, so plug in. Calculator use is not allowed, so make the math as simple as possible by plugging in $y = 1$. The expression becomes $6(1^3 + 1^2) - 2(1^3 + 1^2) = 6(1 + 1) - 2(1 + 1) = 6(2) - 2(2) = 12 - 4 = 8$. This is the target value; circle it. Now plug $y = 1$ into the answer choices to see which one matches the target value. Choice (A) becomes $4(1^3) = 4(1) = 4$. This does not match the target, so eliminate (A). Choice (B) becomes $4(1^5) = 4(1) = 4$. Eliminate (B). Choice (C) becomes $4(1^3) - 4(1^2) = 4(1) - 4(1) = 4 - 4 = 0$. Eliminate (C). Choice (D) becomes $4(1^3) + 4(1^2) = 4(1) + 4(1) = 4 + 4 = 8$. The correct answer is (D).

4. **C** The question asks for the length of an arc of the circle. The larger arc $\overparen{PSR}$ is given and the smaller arc is asked for. The sum of the two arcs makes up the circumference, so try to get the circumference. The parts of a circle have a proportional relationship. In this circle, the degree measure of the central angle is a fraction of the entire 360 degrees, and the arc is the same fraction of the total circumference. Set up the proportion $\dfrac{\text{central angle}}{360} = \dfrac{\text{arc length}}{\text{circumference}}$. The arc given is $\overparen{PSR}$, but the angle given defines arc $\overparen{PQR}$, so find the degrees for angle PSR. There are $360°$ in a circle, so angle $PSR = 360 - 120 = 240°$. Now plug in the given information to get $\dfrac{240}{360} = \dfrac{8\pi}{\text{circumference}}$. Since calculator use is not allowed, reduce the fraction on the left to $\dfrac{2}{3}$ before cross-multiplying to get $2(\text{circumference}) = 24\pi$. Divide both sides of the equation by 2 to get circumference $= 12\pi$. Therefore, $\overparen{PQR} = 12\pi - 8\pi = 4\pi$. The correct answer is (C).

5. **A** The question asks for the value of a in the equation. Start by ballparking. If 12 is divided by a value to become the much larger value of 300, it must have been divided into very small pieces. Thus, (A) is the only answer that will work. If this is not apparent, though, plug in the answers, since the question asks for a specific value and the answers contain numbers in increasing order. Begin by labeling the answers as "a" and start with (B), 25. The equation becomes $300 = \dfrac{12}{25}$, which will result in a fraction on the right side. Eliminate (B). The larger numbers in (C) and (D) will only make the fraction on the right side smaller, so eliminate (C) and (D). The correct answer is (A).

6. **B** The question asks for the difference in two fares and gives an equation for finding the fares. There is no information given about the number of blocks Chris or Amy rode, but the relationship is given: Chris rode 3 more blocks than Amy. Therefore, this is a hidden plug in. For Chris, make $b = 5$. The equation for Chris becomes $F = 3(5) + 6 = 15 + 6 = \$21$. If Chris's ride was 5 blocks, Amy's was $5 - 3 = 2$ blocks. The equation for Amy becomes $F = 3(2) + 6 = 6 + 6 = \$12$. The question asks for the difference in the fares, which is $\$21 - \$12 = \$9$. The correct answer is (B).

7. **B** The question asks for an equation that models a specific situation. Translate the information in bite-sized pieces and eliminate after each piece. One piece of information says that the initial distance from the ground is 48 inches. This value has nothing to do with the time the marble has been rolling, so it should not be associated with t. Eliminate (C) and (D), which multiply 48 by t. Compare the remaining answer choices. The difference between (A) and (B) is the first term on the right side of the equation. The question does not mention the number 155, and there is no reason to divide it by 48, the initial distance. Eliminate (A). The correct answer is (B).

8. **A** The question asks for the number of solutions to a system of equations. Rather than giving the equations, the question shows a graph of the system in the xy-plane. The solution(s) will be any point(s) of intersection of the equations graphed. Be careful to only count points where all three graphs meet. There is a point of intersection of all three graphs around $(-2, 0)$. None of the other points marked on the figure have all three graphs going through them, so there is only one solution. The correct answer is (A).

9. **A** The question asks for the value of a constant in an equation if no value of x will satisfy it. Start by distributing on both sides to determine what is happening with the equation. This becomes $9x + 18 - 3x - 9 = 3cx + 15$. Combine like terms on the left to get $6x + 9 = 3cx + 15$. Because the constants on each side are different, what will cause there to be no solution is if the coefficients on the x terms are the same. For example, there is no solution to $x + 1 = x - 2$ because the x terms cancel out, leaving $1 = -2$. Therefore, $6x = 3cx$. Divide both sides of the equation by $3x$ to get $c = 2$. The correct answer is (A).

10. **C** The question asks for an equivalent form of an expression. There are variables in the answer choices, so plug in. Make $x = 2$. The expression becomes $\dfrac{1}{3(2) - 2} + 4 = \dfrac{1}{6 - 2} + 4 = \dfrac{1}{4} + 4$.

    To get a common denominator, multiply the 4 by $\dfrac{4}{4}$, so the expression becomes $\dfrac{1}{4} + 4\left(\dfrac{4}{4}\right) = \dfrac{1}{4} + \dfrac{16}{4} = \dfrac{17}{4}$. This is the target value; circle it. Now plug $x = 2$ into the answer choices to see which one matches the target value. Choice (A) becomes $\dfrac{3(2) + 2}{3(2) - 2} = \dfrac{6 + 2}{6 - 2} = \dfrac{8}{4} = 2$.

    This does not match the target, so eliminate (A). Choice (B) becomes $\dfrac{3(2) + 4}{3(2) - 2} = \dfrac{6 + 4}{6 - 2} = \dfrac{10}{4}$. Eliminate (B). Choice (C) becomes $\dfrac{12(2) - 7}{3(2) - 2} = \dfrac{24 - 7}{6 - 2} = \dfrac{17}{4}$. Keep (C) but check (D) just in case. Choice (D) has the same denominator as (C) but a different numerator, so it cannot also equal $\dfrac{17}{4}$. Eliminate (D). The correct answer is (C).

11. **B** The question asks for the value of ck in the provided equation. Although there are variables in the question, plugging in on this question would be difficult, given the lack of calculator use and all the different variables. Instead, see if there is a shortcut to isolate ck somewhere on the right side of the equation. When given a polynomial in factored form, it is often necessary to multiply the factors out to solve the question. Start by multiplying the terms in the two sets of parentheses together, being careful to get every combination. This becomes $2ky^3 + 6y^2 - 12y + cky^2 + 3cy - 6c$. There is a ck as the coefficient of the y^2 term, so collect the y^2 terms on the right side together. This will be $6y^2 + cky^2$, and it is equal to the $-10y^2$ term on the left side. Factor out

y^2 from the terms on the right to make the coefficient easier to see. It becomes $-10y^2 = (6 + ck)y^2$. Therefore, y^2 cancels, and $-10 = 6 + ck$. Subtract 6 from both sides of the equation to get $ck = -16$. The correct answer is (B).

12. **C** The question asks for the solution set of an equation. Since the question asks for a specific value or values and the answers contain numbers, plug in the answers. Begin by labeling the answers as "x" and start with a value that appears in several answer choices, such as $x = 3$. The equation becomes $\dfrac{2(3) + 4}{2} = \dfrac{15}{3}$, which simplifies to $\dfrac{6 + 4}{2} = 5$ or $\dfrac{10}{2} = 5$. This is true, so 3 is a solution. Eliminate (B), which does not include 3. Now try another value, such as $x = -5$. The equation becomes $\dfrac{2(-5) + 4}{2} = \dfrac{15}{-5}$, which simplifies to $\dfrac{-10 + 4}{2} = -3$ or $\dfrac{-6}{2} = -3$. This is true, so -5 is also a solution. Eliminate (A) and (D). The correct answer is (C).

13. **D** The question asks for the graph that represents the solution to the system of inequalities. Pick points that are shaded in some graphs but not in others and test them in the given inequalities. To be safe, avoid using points that are on either of the lines. Start with an easy point like (2, 2). The first inequality becomes $6(2) + 2 \geq -6$, which simplifies to $12 + 2 \geq -6$ or $14 \geq -6$. This is true, so try this point in the second inequality. This becomes $2 \leq 3(2) - 1$, which simplifies to $2 \leq 6 - 1$ or $2 \leq 5$. This is also true, so the point (2, 2) should be shaded in the graph of the solution. Eliminate (A), (B), and (C), which do not include this point. The correct answer is (D).

14. **D** The question asks for the solutions to an equation. Since the question asks for a specific value or values and the answers contain numbers, plug in the answers. Begin by labeling the answers as "x" and start with a value that appears in several answer choices, such as $x = 5$. The equation becomes $5 = \sqrt{30 - 5}$, which simplifies to $5 = \sqrt{25}$ or $5 = 5$. This is true, so eliminate (A), which says that there are no values that satisfy the equation, and eliminate (C), which does not include 5. Now try $x = -6$. The equation becomes $-6 = \sqrt{30 - (-6)}$, which simplifies to $-6 = \sqrt{36}$. Be careful: on the SAT, the result of a square root is only positive, so this is not true. The value of $x = -6$ is an extraneous solution, so eliminate (B). The correct answer is (D).

15. **B** The question asks for an equation that represents a graph. Pick a point that is on the graph and plug it into the answer choices to see which ones are true, keeping in mind that $g(x) = y$. The graph contains the point (6, 4), so plug $x = 6$ and $g(x) = 4$ into the answers. Choice (A) becomes $4 = -\dfrac{1}{2}(6 - 4)^2 - 6$, which simplifies to $4 = -\dfrac{1}{2}(2)^2 - 6$. This becomes $4 = -\dfrac{1}{2}(4) - 6$ or $4 = -2 - 6$. This is not true, so eliminate (A). Choice (B) is the same as (A) except that it adds 6 instead of subtracting it. This would make the simplified equation $4 = -\dfrac{1}{2}(4) + 6$, which becomes $4 = -2 + 6$. This is true, so keep (B), but check the remaining choices just in case. Choice (C) becomes $4 = -\dfrac{1}{3}(6 - 4)^2 + 6$ or $4 = -\dfrac{1}{3}(10)^2 + 6$. The value of 10^2 is 100, and this does not divide evenly by 3, so this answer will result in a fraction on the right side. Eliminate (C). Choice (D) becomes $4 = -(6 - 4)^2 + 6$ or $4 = -(10)^2 + 6$. This becomes $4 = -100 + 6$, so eliminate (D). The correct answer is (B).
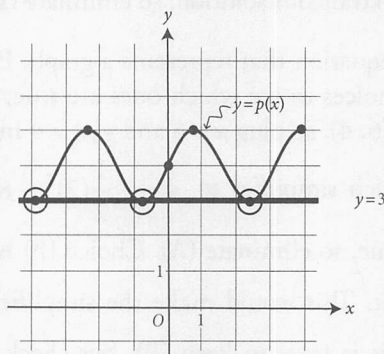
16. **4** The question asks for the value of an expression. There are two possible approaches to this question. One is to solve for a, and then plug that value into the expression $4a - 12$. The other

approach is to notice that the given expression $2a - 6$ can be multiplied by 2 to get $4a - 12$. Therefore, multiply both sides of the original equation by 2 to get $2(2a - 6) = 2(2)$ or $4a - 12 = 4$. Using either approach, the correct answer is 4.

17. **500** The question asks for the volume of a right rectangular pyramid. Use the geometry basic approach. Start by drawing the figure and labeling it with the given information. The height of the pyramid is 15, and the base of the pyramid is 5 by 20. Now write out the formula for the area of a pyramid, which is given in the reference box at the start of each Math section. That formula is $V = \frac{1}{3}lwh$. Plug in the given values to get $V = \frac{1}{3}(5)(20)(15)$. To make the calculations easier without a calculator, first take $\frac{1}{3}$ of 15 to get 5. The formula becomes $V = (5)(20)(5) = 500$ cubic inches. The correct answer is 500.

18. **5** The question asks for the value of a function. In function notation, the number inside the parentheses is the x-value that goes into the function, and the value that comes out of the function is the y-value. At $x = 0$, the y-value is the y-intercept, so try to determine the equation of the k function. The question states that k is perpendicular to the graphed line for the h function. Perpendicular lines have slopes that are negative reciprocals. To find the slope of h, use the formula $slope = \frac{y_1 - y_2}{x_1 - x_2}$ and the points (0, 1) and (3, 0). The slope of h is $\frac{0 - 1}{3 - 0} = -\frac{1}{3}$, so the slope of k is 3. Plug this into the equation $y = mx + b$, where m is the slope and b is the y-intercept. The equation for k becomes $y = 3x + b$. The values of x and y represent any point on the line, so plug in the point $(-1, 2)$ given in the question. The equation becomes $2 = 3(-1) + b$ or $2 = -3 + b$. Add 3 to both sides of the equation to get $5 = b$, which is the value of $k(0)$. The correct answer is 5.

19. **1** The question asks for the minimum value of function r, which is not shown on the graph. Use the graph of $p(x)$ and the relationship between functions p and r to find the answer. The minimum of a function is the smallest y-value of the function. On the given graph, the smallest y-value is at $y = 3$, which happens at three points on the graph.


Plug this value for the minimum of $p(x)$ into the equation $r(x) = p(x) - 2$ to get $r(x) = 3 - 2$ or $r(x) = 1$. This is the minimum of function r. The correct answer is 1.

20. $\frac{5}{13}$, **.384, or .385**

The question asks for the value of $\cos A$ in triangle ABC. Use the geometry basic approach. Start by drawing the figure and labeling it with the given information. Triangle ABC has a right angle at B, so that angle is 90°. It could look like this:
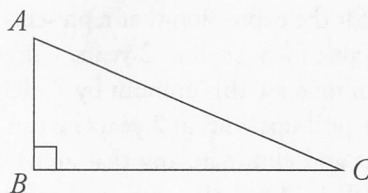
There are trigonometric expressions in the question, so write out SOHCAHTOA to remember the trig functions. The TOA part defines tangent as $\dfrac{opposite}{adjacent}$, so label the side opposite C as 5 and the side adjacent to C as 12.
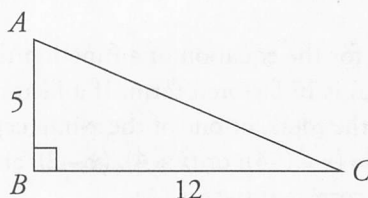
The question asks for the cosine of A, which is defined as $\dfrac{adjacent}{hypotenuse}$. Always set this up before figuring out the remaining side, as it is not always necessary to find it. Here, though, the side adjacent to A is known to be 5, but the hypotenuse is not known yet. The third side of a right triangle can be found by using the Pythagorean Theorem or in this case with the Pythagorean triple 5:12:13. Either way, $AC = 13$. Plug this into the cosine definition to get $\cos A = \dfrac{5}{13}$. This fraction can be gridded in, or it can be expressed as a decimal, which is .384 when lopped off or .385 when rounded. The correct answers are $\dfrac{5}{13}$, .384, or .385.

Section 4: Math (Calculator)

1. **D**   The question asks for the function that expresses the cost of David's mobile data plan. Translate the information in the question into an expression one piece at a time. The monthly fee is $20.00 and the data usage fee is $2.50 per gigabyte. Start with the fee for data usage. The usage is $2.50 per gigabyte used, so to get the fee in a month in which David used g gigabytes, multiply g by 2.50 to get 2.50g. Eliminate any answer choice that doesn't include 2.50g: (A), (B), and (C). Thus, only (D) remains. To determine why (D) is correct, note that the word *and* translates to +, so add 20 to 2.50g to get 20 + 2.50g. The correct answer is (D).

2. **B**   The question asks for the greatest change in annual profit between consecutive years. Go through each year and determine the change in each. From 2000 to 2001, there is a decrease of $50,000 – $40,000 = $10,000. From 2001 to 2002, there is an increase of $55,000 – $40,000 = $15,000. From 2002 to 2003, there is an increase of $60,000 – $55,000 = $5,000. From 2003 to 2004, there is an increase of $75,000 – $60,000 = $15,000. From 2004 to 2005, there is a decrease of $75,000 – $65,000 = $10,000. From 2005 to 2006, there is no change. From 2006 to 2007, there is an increase of $95,000 – $65,000 = $30,000. The greatest is $30,000, which is (B). Alternatively, Ballpark. Look at the graph and notice that the change from 2006 to 2007 appears to be the steepest, so this difference would have to be the answer. The correct answer is (B).

3. **A** The question asks for the expression that represents the number of pull-ups Jim will be able to do in y years. Pick a value for y, such as 2 years. Currently Jim can do 14 pull-ups in a minute. He believes that he can increase this amount by 7 each year. Therefore, he believes that in 1 year he can do $14 + 7 = 21$ pull-ups, and in 2 years he can do $21 + 7 = 28$ pull-ups. Now plug $y = 2$ into each of the choices and eliminate any that aren't equal to 28. Choice (A) is $7(2) + 14 = 28$, so keep (A). Choice (B) is $7(2) + 30 = 44$, so eliminate (B). Choice (C) is $14(2) + 7 = 35$, so eliminate (C). Choice (D) is $14 - 7(2) = 0$, so eliminate (D). The correct answer is (A).

4. **D** The question asks for the value of t in the equation for a given value of v. Plug in the given value to solve for the value of the other variable. If $v = 67$, the equation becomes $67 = 17 + 2.5t$. Subtract 17 from both sides to get $50 = 2.5t$. Divide both sides by 2.5 to get $t = 20$. The correct answer is (D).

5. **A** The question asks for the equation of a function that could possibly define h. Each of the equations in the choices is in factored form. If a factor of the equation of a function is in the form $(x - r)$, r is one of the roots, or one of the x-intercepts. Since the roots of this function are -4, 2, and 4, the roots are $(x - (-4))$ or $(x + 4)$, $(x - 2)$, and $(x - 4)$. The only equation with all of these factors is (A). The correct answer is (A).

6. **C** The question asks for the result when four times n is added to 14, so determine the value of n. Translate the first statement into an equation. The phrase *three times a number n* translates to $3n$. The phrase *is added to* translates to +. The word *is* translates to =. Therefore, the sentence translates to $3n + 9 = 3$. Solve this for n: subtract 9 from both sides to get $3n = -6$, then divide both sides by 3 to get $n = -2$. This is (A). However, the question does not ask for the value of n, so (A) is a trap answer. The question asks for *the result when 4 times n is added to 14*. The phrase *4 times n* translates to $4n$. The phrase *is added to 14* translates to + 14. Therefore, *4 times n is added to 14* translates to $4n + 14$. Since $n = -2$, $4n + 14 = 4(-2) + 14 = -8 + 14 = 6$. The correct answer is (C).

7. **B** The question asks how many 16-ounce cups can be filled from a 64-gallon urn. First, convert the 64 gallons into ounces. Use a proportion: $\dfrac{1 \text{ gallon}}{128 \text{ ounces}} = \dfrac{64 \text{ gallons}}{x \text{ ounces}}$. Cross-multiply to get $x = (128)(64) = 8,192$. Now determine the number of 16-ounce cups that can be filled from an 8,192-ounce urn. Use another proportion: $\dfrac{1 \text{ cup}}{16 \text{ ounces}} = \dfrac{y \text{ cups}}{8,192 \text{ ounces}}$. Cross-multiply to get $16y = 8,192$. Divide both sides by 16 to get $y = 512$. The correct answer is (B).

8. **C** The question asks for the slope of a line that passes through the given points. Use the slope formula, $slope = \dfrac{y_2 - y_1}{x_2 - x_1}$. Let $\left(1, -\dfrac{1}{3}\right)$ be (x_1, y_1) and $\left(5, \dfrac{8}{3}\right)$ be (x_2, y_2). The slope is $\dfrac{\dfrac{8}{3} - \left(-\dfrac{1}{3}\right)}{5 - 1} = \dfrac{\dfrac{8}{3} + \dfrac{1}{3}}{4} = \dfrac{\dfrac{9}{3}}{4} = \dfrac{3}{4}$. The correct answer is (C).

9. **A** The question asks for the average number of fish per tank. For averages, use the formula $T = AN$, in which T is the total, A is the average, and N is the number of things. The *things* in this case are the tanks, of which there are 18. The *total* is the number of fish. To determine this, use the bar graph. There are 2 tanks with 2 fish each, so these 2 tanks have a total of $2 \times 2 = 4$ fish. There are 4 tanks with 3 fish, so these 4 tanks have a total of $4 \times 3 = 12$ fish. There are no tanks with 4 fish, so ignore that column. There are 3 tanks with 5 fish, so these 3 tanks

have a total of $3 \times 5 = 15$ fish. There are 5 tanks with 6 fish, so these 5 tanks have a total of 5×6 $= 30$ fish. There is 1 tank with 7 fish, so this 1 tank has a total of $1 \times 7 = 7$ fish. There are 3 tanks with 8 fish, so these 3 tanks have a total of $3 \times 8 = 24$ fish. Therefore, all the tanks have a total of $4 + 12 + 15 + 30 + 7 + 24 = 92$ fish. The average formula becomes $92 = A(18)$, so the average number of fish per tank is $A = 5.\overline{1}$. The question asks for the closest choice, which is 5. The correct answer is (A).

10. **A** The question asks for the design flaw in the survey. The survey was conducted to determine whether people in City C are more likely to work 9-to-5 office jobs than other jobs. The survey was conducted exclusively during the time in which people would be working at 9-to-5 office jobs. Therefore, people at this type of job would be less likely to answer the call. Choice (A) matches the prediction, so keep (A). Choice (B) is population size. Population size is not necessarily a design flaw, since the population size is not given. Eliminate (B). Choice (C) is sample size. If the sample size were significantly less than the population size, this fact could lead to unreliable results. However, since population size is not known, sample size cannot be determined to be a design flaw. Eliminate (C). Choice (D) refers to the fact that the telephone was used. Since the question does not mention telephone use by people with different types of jobs, there's no reason to believe that using a telephone to conduct the survey would make the results less reliable. Eliminate (D). The correct answer is (A).

11. **D** The question asks which graph could represent $y = p(x)$ if function p has exactly four roots. A *root* of a function is an x-value for which the y-value is 0. The y-value is 0 for all points on the x-axis, so p has to have exactly four x-intercepts (points where the graph intersects the x-axis). Go through each choice and determine the number of x-intercepts. Choices (A) and (C) have three x-intercepts, so eliminate these. Choice (B) has five intercepts. Since the question states that p has *exactly* four roots rather than *at least* four, eliminate (B) as well. Only (D) has exactly four x-intercepts. The correct answer is (D).

12. **A** The question asks for the possible total number of customers in the restaurant that morning. A percent of customers who ordered the brunch special is given, so take 85% of each of the answer choices. Eliminate any choice that doesn't result in a whole number of customers. Start with (A): 85% of 40 is $(0.85)(40) = 34$. Since this is a whole number, this could be the number of customers. The correct answer is (A).

13. **A** The question asks for the expression that gives v in terms of the other variables. Rather than do complex algebra, choose numbers for the variables. Since an equation is given with d isolated, pick numbers for the other variables, t, v, and h, and calculate d. Let $t = 2$, $v = 10$, and $h = 20$. In this case, $d = -8t^2 + vt + h = -8(2)^2 + (10)(2) + 20 = 8$. The question asks for the value of v, so the target answer is 10. Go through the choices and eliminate any answer that is not 10. Choice (A) is $v = \dfrac{8 - 20}{2} + 8(2) = 10$, so keep (A). Choice (B) is $v = \dfrac{8 + 20}{2} - 8(2) = -2$, so eliminate (B). Choice (C) is $v = \dfrac{8 - 20 + 8}{2} = -2$, so eliminate (C). Choice (D) is $v = 8 + 20 - 8(2) = 12$, so eliminate (D). The correct answer is (A).

14. **D** The question asks for what could be the median of 22 scores. The median of an even number of numbers is the average of the middle two when the numbers are listed in order. In this case, it is the average of the 11th and 12th score. Find the location of the 11th and 12th scores on the histogram. There is 1 score from 50 to 60. There are 4 scores from 60 to 70, so there are 5 scores from 50 to 70. There are 2 scores from 70 to 80, so there are 7 scores from 50 to 80. There are 11 scores from 80 to 90, so there are 18 scores from 50 to 90. Since the 11th and 12th scores were passed at the 80-to-90 interval, they must be in this interval. Therefore, the median must be within this interval, as well. The only choice within this interval is 84. The correct answer is (D).

15. **C** The question asks for the percent of people in the survey who use public transit. *Percent* is defined as $\frac{part}{whole} \times 100$. The *part* is the total number of those surveyed who use public transit, which is 51, and the *whole* is the total number of those surveyed, which is 130. Therefore, the percent is $\frac{51}{130} \times 100 \approx 39$. The correct answer is (C).

16. **C** The question asks for the best estimate of people in the metropolitan area who would use public transit and commute for at least one hour. The proportion of people who fit the requirements in the survey can be expected to be the same proportion of people who will fit the requirements in the general population. First, find the number of commuters surveyed who used public transit and had an average daily commute of at least 1 hour. According to the table, there were 29 people in this category. Since the total number of those surveyed is 130 and the total population is 13,000,000, set up the proportion $\frac{29}{130} = \frac{x}{13,000,000}$. Cross-multiply to get $130x = 377,000,000$. Divide both sides by 130 to get $x = 2,900,000$. The correct answer is (C).

17. **B** The question asks how many times more likely it is for a commuter whose average daily commute is less than 1 hour not to take public transit than it is for a commuter whose average daily commute is at least 1 hour not to take public transit. The term *more likely* refers to probability, so determine the probability of each. Go to the table and find the number of commuters who commute less than 1 hour and do NOT commute using public transit. According to the table, there were 46 people in this category, and the total number of commuters who commute less than 1 hour is 68. Therefore, the probability is $\frac{46}{68}$. Now do the same for the probability that someone who commutes at least one hour does not take public transit. According to the table, the number under *Does Not Commute by Public Transit* is 33 and the number under *Total* is 62, so the probability is $\frac{33}{62}$. The question asks *how many times more likely* is the first probability than the second. Set up the equation $\frac{46}{68} = \frac{33}{62}x$. Divide both sides by $\frac{33}{62}$ to get $x \approx 1.27$. The correct answer is (B).

18. **C** The question asks for the best conclusion from the study. The study takes a random sample of subjects without sleep disorders and gives half of them beverage *C*. The subjects who consume beverage *C* sleep less than the subjects who don't consume it. This would seem to indicate that beverage *C* caused people without sleep disorders to sleep less. Go through each of the choices. Choice (A) is incorrect because the study doesn't compare different caffeinated beverages. It only compares consuming beverage *C* to not consuming it. Choice (B) is incorrect, because the study does not indicate *substantial* loss in sleep. Furthermore, the sample only includes people without sleep disorders, so any conclusion must be restricted to this population. Choice (C) is similar to the prediction, so keep this choice. Choice (D), like (B), does not restrict the conclusion to people without sleep disorders. The correct answer is (C).

19. **C** The question asks for the value of *n*, which is one of four numbers. First, eliminate any answers that don't make sense: since *n* is 40% larger than the sum of the other three numbers, *n* will have to be greater than half of 1,764. Eliminate (A) and (B). Try one of the remaining answers, such as (D). If *n* = 1,260, then the remaining three numbers would add up to 1,764 − 1,260 = 504. Since 1,260 is not 40% more than 504, eliminate (D) and choose (C). If desired, check (C): if *n* = 1,029, then the other three numbers add up to 735: 735 + 40% (735) = 735 + 294 = 1,029. The correct answer is (C).

20. **D**   The question asks how much more the 11.5 m³ object weighed than was predicted by the line of best fit. This question can be solved by determining the actual weight of the object and the weight predicted by the line of best fit. However, finding the actual amounts is not necessary. Instead, simply find the difference between the two. Volume is represented by the horizontal axis, so find 11.5 on the horizontal axis. Trace straight up to the data point. From that point, trace the line downward, counting the number of intervals to the line of best fit. There are four intervals. Go to the vertical axis to determine the number of kilograms per interval. The labels are 5,000 kilograms apart, and there are 5 intervals between each label. Therefore, each interval is $\frac{5,000}{5} = 1,000$, so 4 intervals are 4,000 kg. The correct answer is (D).

21. **C**   The question asks for the percent increase in total sales. Since the number of laptops and the number of tablets are different, don't just add the two percent increases. Thus, (D) is a trap answer. A percent change is always equal to the expression $\frac{\text{difference}}{\text{original}} \times 100$. The *original* is the total number of units sold last week, which is 90 + 210 = 300. To get the difference, get the increase in laptops and the increase in tablets separately and then add. There is a fifty percent increase in laptop sales, so the increase is $\frac{50}{100} \times 90 = 45$. There is a thirty percent increase in tablet sales, so the increase is $\frac{30}{100} \times 210 = 63$. Therefore, the total *difference* is 45 + 63 = 108, and the percent increase is $\frac{108}{300} \times 100 = 36\%$. The correct answer is (C).

22. **B**   The question asks for the value of c, a constant that determines the values of x and y on the figure. According to the question, $\cos(x°) = \sin(y°)$. This can only be the case if the two angles are complementary, meaning the measures of the two angles have a sum of 90°. Use the values given for c in the answer choices to find the values of x and y, then see if $x + y = 90$. Start with (B). If $c = 15.5$, then $x = 3(15.5) - 23 = 23.5$ and $y = 66.5$, so $x + y = 23.5 + 66.5 = 90$. Thus, the two angles are complementary. The correct answer is (B).

23. **A**   The question asks for the maximum value for $-3 \le x \le 6$. This is the domain sketched in the graph, so only worry about the points on the sketch. The value of the function is equal to each y-value. Although the values of the function appear to be increasing toward ∞, they do not actually go to ∞ within the points sketched, so eliminate (D). Since the question asks for the maximum value of the function, which is the maximum y-value, find the highest point on the graph. This appears on the far left. Draw a horizontal line to the y-axis to see that this line crosses the y-axis at 4. Therefore, the y-value at this point, or the maximum value of the function, is 4. The correct answer is (A).

24. **B**   The question asks for the perimeter of the fence Matthew will need around his patch of grass. The question says that the width is 8 feet more than 4 times the length. Take this statement and translate it into an equation. Translate *the width* to w. Translate *is* to =. Translate *8 feet more than* to ___ + 8, leaving room on the left for what follows. Translate *4 times the length* to $4l$. Therefore, the statement translates to $w = 4l + 8$. The question also says that the area is 5,472. The area of a rectangle can be found using the formula $A = lw$. Substitute $A = 5,472$ and $w = 4l + 8$ to get $5,472 = l(4l + 8)$. Distribute the l to get $5,472 = 4l^2 + 8l$. Since this is a quadratic equation, get one side equal to 0 by subtracting 5,472 from both sides to get $0 = 4l^2 + 8l - 5,472$. This is a difficult quadratic to factor, so use the quadratic formula, $l = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$, where $a = 4$, $b = 8$,

and $c = -5{,}472$. Substitute these values to get $l = \dfrac{-8 \pm \sqrt{8^2 - 4(4)(-5{,}472)}}{2(4)}$. Use a calculator to

get $8^2 - 4(4)(-5{,}472) = 87{,}616$ and that $l = \dfrac{-8 \pm \sqrt{87{,}616}}{2(4)}$. Take the square root of $87{,}616$ to get

$l = \dfrac{-8 \pm 296}{2(4)} = \dfrac{-8 \pm 296}{8}$. Since length can only be positive, don't take the negative into account

and $l = \dfrac{-8 \pm 296}{8}$ becomes $l = \dfrac{-8 + 296}{8} = \dfrac{288}{8} = 36$. If $l = 36$, then $w = 4l + 8 = 4(36) + 8 = 152$.

To find the perimeter, use $P = 2l + 2w = 2(36) + 2(152) = 376$. The correct answer is (B).

25. **D** The question asks for the value of c, a coordinate in two points on a line. The line intersects the origin as well as the points $(c, 3)$ and $(27, c)$. Questions about lines in the xy-plane often involve slope, so determine the slope of this line. Any two points can be used to find the equation of a line (including the slope). Note that since the line intersects the origin, it intersects point $(0, 0)$ as well as the other two points. Use points $(0, 0)$ and $(c, 3)$ to calculate the slope:

$\dfrac{y_2 - y_1}{x_2 - x_1} = \dfrac{3 - 0}{c - 0} = \dfrac{3}{c}$. The slope can also be determined using points $(0, 0)$ and $(27, c)$: $\dfrac{c - 0}{27 - 0} = \dfrac{c}{27}$.

Since these two slopes must be equal, $\dfrac{3}{c} = \dfrac{c}{27}$. Cross-multiply to get $c^2 = 81$. Take the square root of

both sides to get $c = \pm 9$. Only 9 is a choice. Therefore, the correct answer is (D).

26. **B** The question asks for the length of the segment $\overline{XO}$. Since $\overline{FG}$ is a chord that includes the center, it is a diameter. Therefore, arc FXG is a semicircle. Since the length of the semicircular arc is 14π, the circumference of the circle is $14\pi \times 2 = 28\pi$. The formula for circumference is $C = 2\pi r$, so $28\pi = 2\pi r$. Divide both sides by 2π to get $r = 14$. Since $\overline{XO}$ is a radius, the length is 14. The correct answer is (B).

27. **B** The question asks for an inequality that must be true, so try out a few different values for p and q. Make sure that all values of p and q satisfy the inequality $-|p| < q < |p|$. Let $p = 4$ and $q = 2$. Go through each statement and eliminate any statement that is false. Statement (I) is $4 > 0$, which is true, so keep (I). Statement (II) is $|4| > -2$, which is true, so keep (II). Statement (III) is $4 > |2|$, which is true, so keep (III). Try other values that might change the results. Since the question involves absolute values, try negative numbers. Let $p = -4$ and $q = -2$. In this case, statement (I) is $-4 > 0$, which is false, so cross out (I). Eliminate (A) and (D), since they include statement (I). Since both remaining choices include (II), it must be true, and no more testing of (II) is necessary. Test (III) using the same values of $p = -4$ and $q = -2$: $-4 > |-2|$. This is false, so cross out (III), and eliminate (C). The correct answer is (B).

28. **B** The question asks for a reasonable estimate for the number of blue jelly beans in the entire container. The number of blue jelly beans is given for each of ten regions. Determine the total number of regions in the container. The container has a base of 10 feet by 10 feet, so the area of the base of the entire container is $A = s^2 = (10)^2 = 100$. Each region has a base of 1 foot by 1 foot, so the area of the base of each region is $A = s^2 = (1)^2 = 1$. To get the number of regions, divide the area of the base of

the container by the area of the base of each region to get $\dfrac{100}{1} = 100$. One way to get an estimate of

the number of blue jelly beans in the entire container would be to find the average number of blue

jelly beans in the counted regions and multiply that number by 100. The question asks for an approximation, though, and the answer choices are spread apart, so Ballpark. All of the numbers in the table are around 25. Therefore, 25 is a reasonable estimate for the average number of blue jelly beans, and the total number of jelly beans should be about 25 × 100 = 2,500. The correct answer is (B).

29. **C** The question asks for the probability that a randomly selected ice cream was vanilla based on an incomplete table, so find a way to complete the table. The question states that there are four times as many vanilla ice creams sold as vanilla frozen yogurts. Let x be the number of vanilla frozen yogurts sold; therefore, $4x$ is the number of vanilla ice creams sold. The question also says that there are six times as many chocolate ice creams sold as chocolate frozen yogurts, so let y be the number of chocolate frozen yogurts sold and $6y$ be the number of chocolate ice creams sold. Since there are a total of 32 frozen yogurts sold, $x + y = 32$. Since there are a total of 152 ice creams sold, $4x + 6y = 152$. Since there are two equations with two variables, it is possible to solve for the variables. Stack and add the two equations, trying to eliminate the chocolates to solve for the vanillas. Multiply both sides of the first equation by −6 to get $-6x - 6y = -192$, then stack and add the equations like this:

$$4x + 6y = 152$$
$$-6x - 6y = -192$$
$$-2x = -40$$

Divide both sides by −2 to get $x = 20$. The probability that the ice cream was vanilla can be calculated by dividing the number of vanilla ice creams sold ($4x$) by the total number of ice creams sold (152). Since $x = 20$, the number of vanilla ice creams sold is $4x = 4(20) = 80$. The probability is $\frac{80}{152} \approx 0.526$. The correct answer is (C).

30. **D** The question asks for the sectors that contain all of the solutions to a system of inequalities. To graph an inequality, start by graphing the equation. If the inequality sign is ≥, draw the equation as a solid line and shade above. If the inequality sign is ≤, draw the equation as a solid line and shade below. If the sign is > or <, use the same rule as ≥ or ≤, respectively, but use a dashed line instead of a solid line. Use the inequalities given. Start with $y \geq x$. Since the inequality sign is ≥ rather than >, the graph is the one with the solid line. Since the inequality sign is ≥, shade the solution above the line. Therefore, since only Sectors W and X are above the solid line, eliminate any choice that includes Y and Z. Eliminate (A) and (B). Now look at the inequality $3y < 2x - 3$. Divide both sides by 3 to get $y < \frac{2}{3}x - 1$. Since the inequality sign is <, the solution is below the dashed line. Since Sector W is above the dashed line, eliminate (C). The correct answer is (D).

31. **5 or 6** The question asks for one possible value of h, the number of hot dogs Martina buys. Martina spends between $20 and $25, inclusive, and she buys one hamburger at a cost of $5. This would leave her at least $20 − $5 = $15 and at most $25 − $5 = $20 for hot dogs. In the first case, $15 total divided by $3 per hot dog would get her 5 hot dogs, so 5 is one possible value for h. If she spent up to $20 on hot dogs, she could get $20 divided by $3 per hot dog for 6.67 hot dogs. She can only buy whole hot dogs, so 6 is another possible value of h. Therefore, the two possible correct answers are 5 and 6.

32. **19.4** The question asks for the mean, or average, number of states of the nations listed on the table. For averages, use the formula $T = AN$, in which T is the total, A is the average, and N is the number of things. To get the total, add the number of states for each nation. The total is 6 + 9 + 26 + 16 + 29 + 13 + 31 + 4 + 36 + 2 + 10 + 17 + 50 + 23 = 272. There are 14 nations, so that is the number of things.

The formula becomes $272 = A(14)$, so $A \approx 19.4285714$. Rounded to the nearest tenth, the correct answer is 19.4.

33. **10** The question asks for the value of k given the equation of a function and a point on the graph of the function. Plug the point into the equation. Substitute $x = -2$ and $y = g(x) = 6$ to get $6 = 2(-2)^2 + k(-2) + 18$. Simplify the right side to get $6 = 26 - 2k$. Subtract 26 from both sides to get $-20 = -2k$. Divide both sides by -2 to get $10 = k$. The correct answer is 10.

34. **11** The question asks how many rooms will be assigned three students. Consider the possibility that all rooms have three students. How many leftover students would there be? If 26 rooms are assigned three students, then there are $26 \times 3 = 78$ students. However, the question says that there are 108 students, so there are $108 - 78 = 30$ left. These leftover students have to be assigned to five-student rooms. Since each room already has three students, to make five-student rooms, pair the remaining students and add each pair to one of the three-student rooms. Since there are 30 leftover students, they make 15 pairs, so 15 rooms of three students become five-student rooms. Since there are a total of 26 rooms, there are $26 - 15 = 11$ three-student rooms. The correct answer is 11.

35. $\dfrac{7}{12}$ The question asks what fraction Town A's 1970 population was of Town A's 2000 population. To determine the population in 1970, find 1970 on the horizontal axis, trace straight up to the curve, then straight across to the vertical axis. It hits the vertical axis on the only line between 30 and 40, so the population in 1970 was 35,000. (Note that the vertical axis label indicates that the population is in thousands.) To determine the population in 2000, find 2000 on the horizontal axis, trace straight up to the curve, then straight across to the vertical axis. It hits the vertical axis at 60, so the population in 2000 was 60,000. Therefore, the fraction is $\dfrac{35,000}{60,000} = \dfrac{35}{60} = \dfrac{7}{12}$. This is the correct answer.

36. **4** The question asks for the diameter of the base of a cylinder with a volume of 64π cubic centimeters. The formula for volume of a cylinder is $V = \pi r^2 h$. Plug in $V = 64\pi$ and $h = 16$, as indicated by the figure, to get $64\pi = \pi r^2(16)$. Divide both sides by 16π to get $4 = r^2$. Take the square root of both sides to get $2 = r$. Since the diameter is twice the radius, $d = 2r = 2(2) = 4$. This is the correct answer.

37. **321** This question asks for the angular position at which the carousel will change direction. Angular position is the first equation and represented by θ. Write down known variables and solve. When the carousel changes direction, the angular velocity is 0. Use the first equation, $\omega^2 = \omega_0^2 + 2\alpha\theta$. Plug in $\omega = 0$, $\omega_0 = 90$, and $\alpha = -12.6$ to get $0 = 90^2 + 2(-12.6)\theta$. Simplify the right side to get $0 = 8,100 - 25.2\theta$. Add 25.2θ to both sides to get $25.2\theta = 8,100$. Divide both sides to get $\theta = 321.4286$. Rounded to the nearest degree, the correct answer is 321.

38. **7** The question asks for the time it will take the carousel to completely stop before changing direction. Write down known variables, then choose the equation that gives only time as the unknown. This is the second equation. When the carousel changes direction, the angular velocity is 0. Use the second equation, $\omega = \omega_0 + \alpha t$. Plug in $\omega = 0$, $\omega_0 = 90$, and $\alpha = -12.6$ to get $0 = 90 + (-12.6)t$. Simplify the right side to get $0 = 90 - 12.6t$. Add $12.6t$ to both sides to get $12.6t = 90$. Divide both sides by 12.6 to get $t = 7.1429$. Rounded to the nearest second, the correct answer is 7.