Reading and Writing

Module 1

(27 questions)

QUESTION 1

Choice B is the best answer because it most logically completes the text's discussion of Booker T. Whatley. In this context, "hinder" means hold back or obstruct. The text explains that Whatley encouraged farms to allow customers on site to pick their own produce for a fee. He did so despite critics' concerns that the customers would never pay to do so. This context establishes that the critics' concerns didn't hinder Whatley's efforts to promote the practice.

Choice A is incorrect. The text indicates that critics' skepticism of the idea that customers would pay to pick their own produce didn't have some effect on Whatley's promotion of the practice. The text illustrates this assertion by describing Whatley's "determined advocacy" for the practice. This context suggests that critics' concerns didn't obstruct Whatley's efforts, not that critics' concerns didn't "enhance," or increase or improve, Whatley's efforts. *Choice C* is incorrect because in this context, "misrepresent" would mean portray inaccurately, and the text includes no information relevant to the issue of how Whatley's efforts were portrayed by critics of the practice of charging customers to pick their own produce. *Choice D* is incorrect. The text indicates that critics' skepticism of the idea that customers would pay to pick their own produce didn't have some effect on Whatley's promotion of the practice. The text illustrates this assertion by describing Whatley's "determined advocacy" for the practice. This context suggests that critics' concerns didn't obstruct Whatley's efforts, not that critics' concerns didn't "aggravate," or irritate or make more severe, Whatley's efforts.

QUESTION 2

Choice B is the best answer because it most logically completes the text's discussion of bronze- and brasscasting techniques used by the Igun Eronmwon guild. In this context "adhere to" would mean to act in accordance with. The text states that although members of the Igun Eronmwon guild typically do something with techniques that have been passed down since the thirteenth century, they "don't strictly observe every tradition." By establishing a contrast with not always following traditions, the context suggests that guild members do typically adhere to traditional techniques.

Choice A is incorrect because in this context "experiment with" would mean to do something new with. Although using motors rather than manual bellows is presented as a new approach, the text establishes a contrast between

what the guild members typically do with techniques that have been passed down over centuries and the idea that the members "don't strictly observe every tradition." The phrase "experiment with" wouldn't support the contrast because regularly trying new things with the techniques would be an example of not strictly following all traditions. *Choice C* is incorrect because in this context "improve on" would mean to make better. Although using motors rather than manual bellows might be an improved approach, the text establishes a contrast between what the guild members typically do with techniques that have been passed down over centuries and the idea that the members "don't strictly observe every tradition." The phrase "improve on" wouldn't support the contrast because regularly making changes to the techniques would be an example of not strictly following all traditions. *Choice D* is incorrect because in this context "grapple with" would mean to try hard to solve a difficult problem. Although bronze- and brasscasting are likely challenging tasks, nothing in the text suggests that the guild members have any particular difficulties with the techniques passed down since the thirteenth century.

QUESTION 3

Choice A is the best answer because it most logically completes the text's discussion of Yu's novel. In this context, "haphazard" means marked by a lack of plan or order. The text indicates that the quest featured in the novel, which involves the protagonist bouncing across time, is chaotic and causes the reader to often wonder what will happen. This context suggests that the protagonist's journey seems to be marked by a lack of order.

Choice B is incorrect because the text indicates that the journey featured in Yu's novel involves a character "ricocheting chaotically," or bouncing in a disordered way, across time and causes the reader to often wonder what will happen. It wouldn't make sense to say that a chaotic journey seems "premeditated," or characterized by forethought and planning. *Choice C* is incorrect because the text doesn't give any indication that readers regard the journey in Yu's novel as "inspirational," or as causing extraordinarily creative or brilliant thoughts or actions; instead, the text focuses on the idea that the protagonist's journey is chaotic, or disordered, and doesn't give readers a clear sense of what will happen. *Choice D* is incorrect. Rather than suggesting that the journey featured in Yu's novel is "fruitless," or has an unsuccessful outcome, the text focuses on the idea that while reading about the protagonist's chaotic movements across time, readers are often unsure of what will happen—that is, they don't know whether the protagonist will be successful in finding his father.

QUESTION 4

Choice B is the best answer because it most logically completes the text's discussion of single-celled organism behavior. As used in this context, "rudimentary" means basic or unsophisticated. According to the text, a study of the single-celled protozoan *Stentor roeseli* showed that the organisms can switch strategies for escaping certain stimuli, "sophisticatedly 'changing their minds'" and using new strategies should other strategies fail. This context suggests that single-celled organisms may not be limited to behaviors that are basic or rudimentary, since the study showed that single-celled protozoans can respond complexly to irritating stimuli.

Choice A is incorrect because the text doesn't suggest that single-celled organisms may not be limited to behavior that is "aggressive," or threatening. Rather, the text suggests that single-celled organisms may not be limited to behaviors that are basic, since the study of *Stentor roeseli* showed that single-celled protozoans can respond complexly to irritating stimuli.

Choice C is incorrect because the text doesn't suggest that single-celled organisms may not be limited to behavior that is "evolving," or advancing. Rather, the text suggests that single-celled organisms may not be limited to behaviors that are basic, since the study of *Stentor roeseli* showed that single-celled protozoans can respond complexly to irritating stimuli. *Choice D* is incorrect because the text doesn't suggest that single-celled organisms may not be limited to behavior that is "advantageous," or helpful. Rather, the text suggests that single-celled organisms may not be limited to behaviors that are basic, since the study of *Stentor roeseli* showed that single-celled protozoans can respond complexly to irritating stimuli.

QUESTION 5

Choice A is the best answer because it most logically completes the text's discussion of late nineteenth- and early twentieth-century household food purchases. In this context, "surmised" means formed an idea or assumption with little evidence. The text explains that certain economic historians "assumed" that large and small households spent different amounts on food per person, but that another economist found this supposition to be false based on evidence from available data. This context suggests that the economic historians made an incorrect assumption without enough consideration of evidence.

Choice B is incorrect. In this context, "contrived" would mean brought about or created through trickery. Nothing in the text suggests that the economic historians were deliberately trying to trick people with a claim about food purchasing behaviors in late nineteenth- and early twentieth-century households; the text simply suggests that they made an assumption about those behaviors that another historian believes isn't supported by the available data. *Choice C* is incorrect because the text indicates that it's Logan and not the economic historians who "questioned," or doubted, the assumption that large and small households in the late nineteenth and early twentieth centuries spent different amounts on food per person; the economic historians are the ones who made that assumption to begin with. *Choice D* is incorrect because nothing in the text suggests that some economic historians "regretted," or felt sad or remorseful about, the food purchasing behaviors of late nineteenth- and early twentieth-century households. The text focuses on the idea that the economic historians made an assumption about those behaviors that may not be supported by available data, not on the historians' emotional response to what households did in the past.

QUESTION 6

Choice D is the best answer because as used in the text, "answers" most nearly means fulfills. In the text, Fabry and Busman claim that the robots manufactured by their company are more efficient than human workers, which they refer to as "the human machine." Fabry observes that the human machine "no longer answers the requirements of *modern engineering*." That is, human workers are incapable of meeting the rigorous needs of modern, industrialized workplaces.

Choice A is incorrect. Although in some contexts "answers" can mean explains, it doesn't have that meaning in this context because the topic under discussion is human beings' inability to perform labor efficiently, not their inability to engage in discussion or explanation. *Choice B* is incorrect. Although in some contexts "answers" can mean rebuts, or proves a claim or argument to be false, it wouldn't make sense to speak of proving requirements to be false; requirements might or might not be reasonable, but they can't be verified as truthful or untruthful, as claims or accusations can. *Choice C* is incorrect.

Although in some contexts, "answers" can mean defends against criticism, or justifies, it doesn't have that meaning in this context because the opinion that Fabry expresses is that human workers can no longer fulfill the requirements of modern workplaces, not that they have ceased to justify those requirements or to defend them against criticism; indeed, there is no suggestion in the text that workers ever defended those requirements.

QUESTION 7

Choice A is the best answer because it presents an explanation about a helicopter that is directly supported by the text. The text states that Mars's atmosphere is much less dense than Earth's, and as a result, the air on Mars doesn't provide the resistance required to support the blades of a helicopter built for Earth and to keep the helicopter aloft. In other words, a helicopter built for Earth can't fly on Mars because of the differences in the two planets' atmospheres.

Choice B is incorrect because instead of stating that the blades of helicopters built for Earth are too large to work on Mars, the text indicates that the helicopter built to fly on Mars actually has even longer blades than a helicopter built for Earth. *Choice C* is incorrect because the text never addresses the role of gravity on Mars or on Earth; instead, it focuses on atmospheric conditions. *Choice D* is incorrect because the text doesn't indicate that helicopters built for Earth are too small to operate in the conditions on Mars. In fact, the text states that the size of the helicopter built to fly on Mars is the same size as a helicopter built for Earth, even though it has longer blades that rotate faster.

QUESTION 8

Choice A is the best answer because it best states the main idea of the text. According to the text, jalis' traditional role has been to maintain information about families' histories and significant events. The text goes on to say that although technological changes have altered jalis' role somewhat, jalis are still valued for preserving the histories of their communities.

Choice B is incorrect because the text says nothing about jalis' views of the various tasks they perform. There is no information to support the idea that many jalis prefer teaching to other tasks. *Choice C* is incorrect because the text doesn't describe jalis as being sources of entertainment. Rather, jalis are presented as valued sources of knowledge. Additionally, the text gives no indication of how long jalis have been serving their communities. *Choice D* is incorrect because the main focus of the text is on jalis' role and their continued value despite the effects of technology, not on what technology can now do. Although the text indicates that jalis' role has changed as a result of technological changes, the text doesn't present any specific information about technology performing tasks that jalis once performed.

QUESTION 9

Choice D is the best answer because it most accurately states the main idea of the text. After establishing that Buck views most people "as nothing," the text explains that Buck won't acknowledge people other than Thornton unless they appear friendly toward Thornton, and even then he's only reluctantly accepting. Thus, the text focuses on the idea that Thornton has a special status in Buck's mind, with Buck holding him in higher regard than other people.

Choice A is incorrect because the text conveys that Buck isn't social with people other than Thornton but doesn't address Buck's life or temperament before he lived with Thornton. *Choice B* is incorrect because the text conveys

that Buck doesn't really care about people other than Thornton and is aloof toward them. However, there's no indication that Buck mistrusts and avoids people generally; indeed, he accepts Thornton, who is a human. *Choice C* is incorrect because the text refers to random travelers praising and petting Buck and Thornton's partners giving Buck favors, but there's no indication that any of these people are Thornton's friends or that they have a particular fondness for Buck.

QUESTION 10

Choice B is the best answer because the quotation from *The Souls of Black Folk* illustrates the claim that Du Bois felt a sense of cultural recognition when he heard Black folk songs. In the quotation, Du Bois explains that for his entire life, Black folk songs "stirred [him] strangely." Even though they originated in the South, a region he wasn't familiar with, he knew the songs "as of me and of mine." That is, he identified strongly with them and associated them with his community. Therefore, Du Bois felt an intuitive sense of cultural recognition when he heard Black folk songs.

Choice A is incorrect. Although the quotation considers the cultural and spiritual value of Black folk music, it doesn't establish that this music inspired in Du Bois a sense of cultural recognition. *Choice C* is incorrect because this quotation addresses the cultural survival of Black folk songs despite attempts to caricature, or parody, them, not Du Bois's sense of cultural connection to them. *Choice D* is incorrect because the quotation indicates that the Black folk songs and music are old, "the siftings of centuries," instead of addressing how Du Bois felt when he heard the songs.

QUESTION 11

Choice C is the best answer because it uses data from the graph to effectively complete the example of Eludoyin and his colleagues' findings concerning female farmers in some regions of Ondo State, Nigeria. The graph presents values for the percentage of Ondo State small-scale farmers who are female, by type of crop and region. The graph shows that of the farmers mainly cultivating non-root vegetables, approximately 57% in north Ondo and approximately 54% in south Ondo are female; in other words, most of those farmers are female, which exemplifies the idea that female farmers make up the majority (more than half) of the farmers cultivating specific types of crops in some regions.

Choice A is incorrect because it inaccurately cites data from the graph: the graph shows that in south Ondo, most of the farmers mainly cultivating non-root vegetables are women (approximately 54%), but that only about 35% (less than half) of the farmers mainly cultivating cereals are women. *Choice B* is incorrect because it inaccurately cites data from the graph: the graph shows that more women in central Ondo mainly cultivate cereals than mainly cultivate root crops (approximately 36% and 20%, respectively). Additionally, it doesn't effectively complete the example because the graph shows that female farmers don't make up the majority (more than half) of the farmers for any type of crop in central Ondo. *Choice D* is incorrect because it doesn't effectively complete the example; it simply states that a relatively equal proportion of women across the three regions mainly cultivate cereals, which doesn't address the value for that proportion and thus doesn't show that a majority (more than half) of the farmers cultivating certain crops are female.

QUESTION 12

Choice B is the best answer because it most logically completes the text's discussion of Zelda Fitzgerald's contributions to literature. The text begins by saying that many scholars view Zelda mainly in terms of her marriage to F. Scott Fitzgerald and "don't recognize Zelda as a writer in her own right." The text then mentions a novel and "numerous short stories" that she wrote and that such scholars tend to ignore. Therefore, those scholars who focus on Zelda only as an inspiration for F. Scott's writings risk misrepresenting the full range of Zelda's contributions to literature.

Choice A is incorrect. Although the text does mention that Zelda Fitzgerald "likely influenced" her husband's literary work, its focus is on Zelda's own writing, not on her husband's writing or factors that might have influenced it. *Choice C* is incorrect because the text does not discuss F. Scott and Zelda Fitzgerald's opinions of each other's works. *Choice D* is incorrect. Although the text does suggest that F. Scott Fitzgerald's works were "likely influenced in part" by his marriage to Zelda, it does not discuss autobiographical interpretations of the works of either F. Scott or Zelda.

QUESTION 13

Choice B is the best answer because it presents the conclusion that most logically follows from the text's discussion of the relationship between atmospheric carbon dioxide and sauropod body size. The text establishes that sauropods evolved to reach enormous sizes, and it notes that some scientists have asserted that the cause of this phenomenon was increased plant production that resulted from increased atmospheric carbon dioxide. The text goes on to state, however, that atmospheric carbon dioxide levels didn't increase around the time of important periods in sauropods' evolution of larger body sizes. If significant periods of sauropod evolution toward larger sizes occurred without increased atmospheric carbon dioxide levels, that suggests that the evolution of larger sizes didn't depend on increased carbon dioxide in the atmosphere.

Choice A is incorrect because the text doesn't describe any fluctuations in atmospheric carbon dioxide, so there's no evidence in the text to support the conclusion that such fluctuations had different effects on different sauropod lineages. All that the text says about atmospheric carbon dioxide levels is that there weren't increases at particular points that correspond with key moments in sauropod evolution. *Choice C* is incorrect because the text indicates that there weren't significant increases in atmospheric carbon dioxide around the time of important periods in sauropods' evolution toward larger body sizes, not that atmospheric carbon dioxide was higher when the largest sauropods lived than when sauropods first appeared. *Choice D* is incorrect because the text indicates that atmospheric carbon dioxide levels didn't increase at important periods in sauropod evolution, not that higher levels would have affected that evolution. The text provides no information about how higher levels of atmospheric carbon dioxide might have affected sauropods.

QUESTION 14

Choice D is the best answer. The convention being tested is punctuation between a subject and a verb. When, as in this case, a subject ("Calida Garcia Rawles") is immediately followed by a verb ("was"), no punctuation is needed.

Choice A is incorrect because no punctuation is needed between the subject and the verb. *Choice B* is incorrect because no punctuation is needed between the subject and the verb. *Choice C* is incorrect because no punctuation is needed between the subject and the verb.

QUESTION 15

Choice D is the best answer. The convention being tested is punctuation use between sentences. In this choice, the period after "walls" is used correctly to mark the boundary between the first sentence ("In...walls") and the second sentence ("With...techniques"), which starts with a supplementary phrase.

Choice A is incorrect because it results in a comma splice. A comma can't be used in this way to mark the boundary between sentences. *Choice B* is incorrect because it results in a run-on sentence. The sentences ("In...walls" and "with...paintings") are fused without punctuation and/or a conjunction. *Choice C* is incorrect. Without a comma preceding it, the conjunction "so" can't be used in this way to join sentences.

QUESTION 16

Choice B is the best answer. The convention being tested is the use of plural and possessive nouns. The plural possessive noun "grains'" and the plural noun "properties" correctly indicate that the simulations involved multiple snow grains and that those snow grains had several properties.

Choice A is incorrect because the context requires the plural possessive noun "grains'" and the plural noun "properties," not the singular possessive noun "grain's" and the plural possessive noun "properties'." *Choice C* is incorrect because the context requires the plural noun "properties," not the singular possessive noun "property's." *Choice D* is incorrect because the context requires the plural possessive noun "grains'," not the plural noun "grains."

QUESTION 17

Choice C is the best answer. The convention being tested is the coordination of main clauses within a sentence. This choice uses a semicolon to correctly join the first main clause ("The Mission...parks") and the second main clause that begins with "it."

Choice A is incorrect. When coordinating two longer main clauses such as these, it's conventional to use a comma before the coordinating conjunction. *Choice B* is incorrect because it results in a run-on sentence. The two main clauses are fused without punctuation and/or a conjunction. *Choice D* is incorrect because it results in a comma splice. Without a conjunction following it, a comma can't be used in this way to join two main clauses.

QUESTION 18

Choice A is the best answer. The convention being tested here is subject-verb agreement. The singular verb "was" agrees in number with the singular subject "Josephine St. Pierre Ruffin."

Choice B is incorrect because the plural verb "were" doesn't agree in number with the singular subject "Josephine St. Pierre Ruffin." *Choice C* is incorrect because the plural verb "are" doesn't agree in number with the singular subject "Josephine St. Pierre Ruffin." *Choice D* is incorrect because the plural verb "have been" doesn't agree in number with the singular subject "Josephine St. Pierre Ruffin."

QUESTION 19

Choice D is the best answer. The convention being tested is the punctuation of a supplementary element within a sentence. In this choice, the dash after "cephalopods" pairs with the dash after "cuttlefish" to clearly separate the supplementary element "ocean dwellers that include the squid, the octopus, and the cuttlefish" from the rest of the sentence. This supplementary element functions to explain what cephalopds are, and the pair of dashes indicates that this element could be removed without affecting the grammatical coherence of the sentence.

Choice A is incorrect because it fails to use appropriate punctuation to separate the supplementary element that explains what cephalopods are from the rest of the sentence. *Choice B* is incorrect because it fails to use appropriate punctuation to separate the supplementary element that explains what cephalopods are from the rest of the sentence. *Choice C* is incorrect because it fails to use appropriate punctuation to separate the supplementary element that explains what cephalopods are from the rest of the sentence.

QUESTION 20

Choice D is the best answer. The convention being tested is finite and nonfinite verb forms within a sentence. Relative clauses, such as the one beginning with "that," require a finite verb, a verb that can function as the main verb of a clause. This choice correctly supplies the clause with the finite future tense verb "will be."

Choice A is incorrect because the nonfinite participle "being" doesn't supply the clause with a finite verb. *Choice B* is incorrect because the nonfinite to-infinitive "to be" doesn't supply the clause with a finite verb. *Choice C* is incorrect because the nonfinite to-infinitive "to have been" doesn't supply the clause with a finite verb.

QUESTION 21

Choice D is the best answer. "In fact" logically signals that the information in this sentence—that McFerrin finds the research phase of her work to be just as fascinating as travel—emphasizes and elaborates on the previous sentence's point that McFerrin regards background research as a rewarding activity.

Choice A is incorrect because "by contrast" illogically signals that the information in this sentence contrasts with the previous sentence's point about McFerrin's attitude toward background research. Instead, it emphasizes and elaborates on that point. *Choice B* is incorrect because "likewise" illogically signals that this sentence merely adds a second, similar point to the previous sentence's point about McFerrin's attitude toward background research. Instead, it emphasizes and elaborates on that point. *Choice C* is incorrect because "besides" illogically signals that this sentence provides a separate point in addition to, or apart from, the previous sentence's point about McFerrin's attitude toward background research. Instead, it emphasizes and elaborates on that point.

QUESTION 22

Choice C is the best answer. The sentence effectively introduces *The Holder of the World* to an audience already familiar with Mukherjee, explaining that the novel centers around two women and mentioning the author without providing any other identifying information.

Choice A is incorrect. The sentence provides a detail about Mukherjee's settings; it doesn't introduce, or even mention, the novel. *Choice B* is incorrect. The sentence provides introductory information about Mukherjee; it doesn't effectively introduce her novel to an audience already familiar with the author. *Choice D* is incorrect. The sentence provides introductory information about Mukherjee; it doesn't effectively introduce her novel to an audience already familiar with the author.

QUESTION 23

Choice D is the best answer. The sentence presents both the study and its findings, noting the study's date and the researcher's name as well as describing what the researcher determined about the jawbones and how she determined it.

Choice A is incorrect. While the sentence describes the study and the researcher's initial assessment, it doesn't present the study's findings. *Choice B* is incorrect. While the sentence describes the study and its focus, it doesn't present the study's findings or the name of the researcher who conducted it. *Choice C* is incorrect. While the sentence mentions the study's methodology and provides information about pterosaurs, it doesn't present the study's findings.

QUESTION 24

Choice A is the best answer. By noting that Selvon is a Trinidadian author and indicating that *The Lonely Londoners*, published in 1956, is about a group of men who emigrate from the Caribbean to Great Britain after World War II, the sentence effectively introduces Samuel Selvon and his novel to a new audience.

Choice B is incorrect. The sentence indicates the order in which two of Selvon's novels were written; it doesn't introduce Samuel Selvon and *The Lonely Londoners* to a new audience. *Choice C* is incorrect. While the sentence describes the novel *The Lonely Londoners*, it doesn't mention its author, Samuel Selvon, by name and thus doesn't effectively introduce him to a new audience. *Choice D* is incorrect. The sentence indicates that two of Selvon's novels include the same characters; it doesn't introduce Samuel Selvon and *The Lonely Londoners* to a new audience.

QUESTION 25

Choice C is the best answer. The sentence emphasizes a similarity between the two sea turtle species: both can be found in the Atlantic Ocean.

Choice A is incorrect. The sentence indicates that the olive ridley sea turtle is one of seven species of sea turtle; it fails to mention the Kemp's ridley sea turtle. *Choice B* is incorrect. The sentence emphasizes a difference between the two sea turtle species rather than a similarity. *Choice D* is incorrect. The sentence emphasizes a difference between the two sea turtle species rather than a similarity.

QUESTION 26

Choice D is the best answer. The sentence effectively summarizes the study, noting who conducted it, when it was conducted, and what its results showed: that auks' landing success rate decreased as wind conditions intensified.

Choice A is incorrect. While the sentence presents the methodology of the study—that is, the approach taken by the researchers—it fails to summarize the study as a whole. *Choice B* is incorrect. While the sentence presents the

aim, or goal, of the study, it fails to summarize the study as a whole. *Choice C* is incorrect. While the sentence indicates what Shepard studied, it fails to mention a key factor: the effect of wind. It thus fails to summarize the study as a whole.

QUESTION 27

Choice C is the best answer. The sentence effectively introduces *Paradise* to an audience unfamiliar with the novel and its author, describing *Paradise* as a historical novel about colonial East Africa and its author as the winner of the 2021 Nobel Prize in Literature.

Choice A is incorrect. While the sentence introduces Abdulrazak Gurnah to an audience unfamiliar with the author, it doesn't effectively introduce *Paradise*. *Choice B* is incorrect. While the sentence provides background information about *Paradise*, it doesn't effectively introduce the novel to an audience unfamiliar with its author. *Choice D* is incorrect. While the sentence provides background information about *Paradise*, it doesn't effectively introduce the novel to an audience unfamiliar with its author.

Reading and Writing

Module 2

(27 questions)

QUESTION 1

Choice B is the best answer because it most logically completes the text's discussion of Ward and colleagues' findings. As used in this context, "innocuous" means mild or unharmful. The text describes the vibration and warming that Ward and colleagues used to alleviate itching as "harmless applications" and goes on to contrast these applications with another stimulus that actually offers more relief even though it seems to be stronger and "less benign." This context conveys the idea that vibration and warming were innocuous stimuli.

Choice A is incorrect because the text focuses on a distinction between harmless stimuli and those that seem to be less benign. Nothing in the text suggests that any of the treatments are "deceptive," or misleading; indeed, even the less effective ones are described as offering some relief. *Choice C* is incorrect because the text focuses on the amount of relief from itching offered by harmless stimuli and those that seem to be less benign. The text doesn't suggest that any of these stimuli are "novel," or original and new; heat, vibration, and electricity aren't new inventions. *Choice D* is incorrect because it wouldn't make sense to describe an application of vibration or warming as "impractical," or not suitable for use. The text indicates that these harmless applications are useful in that they offer at least some temporary relief.

QUESTION 2

Choice B is the best answer because it most logically and precisely completes the text's discussion of studies of altitude's effect on blood chemistry. In this context, "paucity of" means lack of. In describing the inspiration behind Al-Sweedan and Alhaj's research, the text uses the word "though" to suggest a contrasting relationship between two types of studies: those examining the effect on blood chemistry of living at a high altitude and those examining the effect on blood chemistry of living in locations below sea level. This contrasting relationship and the text's use of the word "many" provide context suggesting that there are few, if any, examples of the second type of study, whereas there are numerous examples of the first type.

Choice A is incorrect because it wouldn't make sense in context for there to be a "quarrel about," or open disagreement about, studies of the effect on blood chemistry of living in locations below sea level. The text's use of the words "though" and "many" suggests a contrasting relationship in terms of

amount between two types of studies: those examining the effect on blood chemistry of living at a high altitude and those examining the effect on blood chemistry of living in locations below sea level. There's nothing in the text to suggest that the contrast between the two types of studies involves the extent to which researchers broadly agree or disagree about the contents of either type. *Choice C* is incorrect because it wouldn't make sense in context for there to be a "profusion of," or great abundance of, studies of the effect on blood chemistry of living in locations below sea level. The text's use of the words "though" and "many" suggests a contrasting relationship in terms of amount between two types of studies: those examining the effect on blood chemistry of living at a high altitude and those examining the effect on blood chemistry of living in locations below sea level. Rather than logically completing this contrast, "profusion of" would indicate that the two types of studies are similar in terms of amount, with many examples existing of both types. *Choice D* is incorrect because it wouldn't make sense in context for there to be a "verisimilitude in," or appearance of truth in, studies of the effect on blood chemistry of living in locations below sea level. The text's use of the words "though" and "many" suggests a contrasting relationship in terms of amount between two types of studies: those examining the effect on blood chemistry of living at a high altitude and those examining the effect on blood chemistry of living in locations below sea level. There's nothing in the text to suggest that the contrast between the two types of studies involves the extent to which either type of study presents an appearance of truth.

QUESTION 3

Choice C is the best answer because it most logically completes the text's discussion of the legitimacy of the reigns of French monarchs such as Hugh Capet and Henry I. As used in this context, "buttress" means to strengthen or defend. The text indicates that regardless of whether a French monarch's reign was significant or uneventful, each monarch faced questions about his right to the throne. The text goes on to say that in order to understand the path of a French monarch's reign, it's important to understand what contributed to the monarch's ability to "hold the throne." This context suggests that French monarchs such as Hugh Capet and Henry I had to buttress, or defend, their right to be monarch.

Choice A is incorrect. Saying that a monarch who is faced with questions about the legitimacy of his reign was able to "reciprocate" his right to the French throne would mean that he either returned his right to the throne or that he responded in kind to the challenge. Neither of these meanings would make sense in context because the text focuses on people who did reign as French monarchs and defended their right to do so. *Choice B* is incorrect because it wouldn't make sense in context to discuss factors that enabled a monarch to "annotate," or add notes to or explain, his right to the French throne. Nothing in the text suggests that the monarchs were writing notes about their right to the throne; instead, faced with questions about the legitimacy of their reign, the monarchs defended their right. *Choice D* is incorrect because it wouldn't make sense in context to discuss factors that enabled a monarch to "disengage," or withdraw his right to the French throne. The text focuses on an examination of people who reigned as French monarchs, not on people who didn't choose to rule.

QUESTION 4

Choice C is the best answer because it most logically completes the text's discussion of Jung and her team's study of acts of kindness. In this context, "foster" means encourage or promote the development of. The text indicates that Jung and her team found that seeing a helpful (or prosocial) act makes a

bystander more likely to help someone else, which can in turn inspire additional people to help others. That is, the team showed that single acts of kindness can foster additional prosocial acts across a group.

Choice A is incorrect because nothing in the text suggests that Jung and her team found that single acts of kindness "require," or depend on or make obligatory, broader prosocial (or helpful) behavior across a group. There's no suggestion in the text that individual acts of kindness can only occur if other prosocial acts have already occurred, and the text indicates only that an act of kindness *can* inspire additional helpful acts, not that it necessarily will do so. *Choice B* is incorrect because the text focuses on a possible direct effect of individual acts of kindness, or single helpful actions, and it wouldn't make sense to suggest that actions can "remember," or hold a memory of, something. *Choice D* is incorrect because the text doesn't indicate that Jung and her team found that single acts of kindness can "discourage," or hinder, prosocial (or helpful) behavior across a group. On the contrary, the text states that Jung and her team found that seeing a helpful act makes a bystander *more* likely to help someone else, which can in turn inspire even more people to help others.

QUESTION 5

Choice D is the best answer because it best describes the function of the underlined sentence in the text's overall portrayal of how the women in Ohiyesa's tribe harvested maple syrup. The text states that the women used an axe to strike the maple trees in order to find out which ones would produce sap. The underlined sentence compares the trees to people, with the sap described as the trees' "life-blood." Some of the trees are ready to give out their sap, while others are unwilling to do so. Using personification, the sentence provides greater detail about the aspect of the maple trees—their potential to give sap—that the women are evaluating.

Choice A is incorrect because the personalities of the women are not discussed in the text. Although the underlined sentence does mention "individual characters," this reference is not to the women in the text but rather to the maple trees, which the sentence compares to people with individual character traits. *Choice B* is incorrect because the underlined sentence focuses on the trees' willingness or refusal to yield sap, not on the beneficial relationship between the women and the trees. Additionally, although the text does suggest that the women and their tribe benefit from the maple trees since the trees allow the women to harvest syrup, there is nothing in the text to suggest that the trees benefit from this relationship in turn. *Choice C* is incorrect because the underlined sentence is comparing maple trees to humans, not addressing the influence of the natural environment on how the actual humans in the text, the women, behave.

QUESTION 6

Choice A is the best answer because it most accurately describes the main purpose of the text, which is to show that while Jane calmly goes about her daily tasks, she is experiencing internal agitation about possibly seeking a new job. At the start of the text, Jane says, "I went on with my day's business tranquilly," indicating that she is outwardly calm. This outward calmness is then contrasted with her intense internal restlessness, as Jane says that thoughts of leaving her job keep running through her mind, that she is "involuntarily framing advertisements" (meaning that she can't stop herself from thinking up potential listings for jobs), and that she often wonders what new "situations" (or jobs) would be like.

Choice B is incorrect because the text gives no indication of Jane's feelings, either positive or negative, about the people she works for at Thornfield Hall. And rather than emphasizing that Jane feels particularly loyal to her employers, the text focuses on her constant consideration of leaving her job. *Choice C* is incorrect because the text gives no indication that Jane finds her current situation fulfilling, or satisfying. Given that much of the text is focused on Jane's thoughts about possibly leaving her job for a new one, it might be the case that she finds her situation challenging, but there is no evidence in the text that Jane also finds that situation satisfying—she says nothing positive about her current job at all, in fact. *Choice D* is incorrect because the text describes Jane as wondering about getting a new job, not as determined to definitely do so. Jane keeps thinking about reasons why she "should" quit her current job (indicating that she hasn't yet decided to) and imagining possible new situations she could find, but she says at the end of the text that these thoughts "might germinate and bear fruit if they could," meaning that the thoughts haven't yet led to a decision—that Jane isn't yet determined to get a new job somewhere else.

QUESTION 7

Choice A is the best answer because it accurately describes the organization of the elements within the text. The text begins with the claim that Joni Mitchell's album covers use images she creates in order to emphasize ideas embedded in her albums. It then goes on to provide an example of how Mitchell's self-portrait on the cover of *Turbulent Indigo* resembles a painting by Van Gogh, which the text indicates helps emphasize the strong connection Mitchell feels toward Van Gogh, a connection that is also expressed in the album's title song.

Choice B is incorrect because there are no references in the text to artists other than Joni Mitchell and Van Gogh. *Choice C* is incorrect because there is nothing in the text that calls attention to any similarities or differences between Joni Mitchell and Van Gogh. Instead, it mentions that Mitchell feels a strong "artistic connection" to Van Gogh. *Choice D* is incorrect because the text discusses the cover before referring to any songs, and it only references one song from the album not all the songs.

QUESTION 8

Choice C is the best answer because it best describes how the underlined sentence functions in the text as a whole. The first sentence presents the implications of Veeraraghavan's team's study: sunshine exposure during work hours can cause overly optimistic behavior. The underlined sentence then describes the data the team consulted and how they were used (comparing predictions about earnings to what the companies actually earned), and the final sentence presents what the team found in their examination of the data. Thus, the underlined sentence mainly functions to explain part of the methodology used in the team's study.

Choice A is incorrect because the underlined sentence explains in part how the team conducted their analysis of the effect of sunshine but doesn't address what the team found; a broad summary is instead given in the other two sentences. *Choice B* is incorrect because the underlined sentence doesn't present any specific examples from the team's comparisons of 29,000 earnings predictions to actual earnings; it simply explains in part how the team conducted their analysis. *Choice D* is incorrect because the underlined sentence simply explains in part how the team conducted their analysis; the text never mentions any challenges that the team encountered in their study.

QUESTION 9

Choice B is the best answer because it reflects how the author of Text 2 would most likely respond to Text 1 based on the information provided. Text 1 discusses the discovery of a regeneration-linked gene, EGR, in both three-banded panther worms (which are capable of full regeneration) and humans (who have relatively limited regeneration abilities). Text 1 characterizes this discovery as "especially promising" and a sign of "exciting progress" in understanding human regeneration. The author of Text 2, on the other hand, focuses on the fact that the team that reported the EGR finding pointed out that while EGR's function in humans isn't yet known, it's likely very different from its function in panther worms. Therefore, the author of Text 2 would most likely say that Text 1's enthusiasm about the EGR discovery is overly optimistic given Srivastava's team's observations about EGR in humans.

Choice A is incorrect because the author of Text 2 explains that Srivastava and her team explicitly reported that they haven't yet identified how EGR functions in humans; therefore, the author of Text 2 wouldn't say that Text 1's excitement is reasonable for the stated reason. Instead, the author of Text 2 would likely characterize Text 1's excitement as premature and overly optimistic. *Choice C* is incorrect because Text 1 does treat Srivastava's team's findings with enthusiasm; it describes the discovery of EGR in both three-banded panther worms and humans as promising and exciting. It would be illogical for the author of Text 2 to say that because most others treat the discovery with enthusiasm, Text 1's enthusiastic characterization of the discovery is unexpected. *Choice D* is incorrect because Text 1 isn't at all dismissive of Srivastava's team's findings; instead, Text 1 is optimistic about the EGR discovery, characterizing it as promising and exciting. There's nothing in Text 2 to suggest that the author of Text 2 would say that Text 1's praise for the discovery is dismissive, or disdainful.

QUESTION 10

Choice C is the best answer because it uses data from the table to effectively exemplify the idea that the film outputs of the four individuals included in the table should be considered bare minimums—that is, that we should assume that the individuals actually had higher outputs than those recorded. The table presents the years during which the individuals were active and the number of known films the individuals are credited in. The table indicates that Lillian St. Cyr has 66 film credits as an actor and that Edwin Carewe has 58 film credits as a director; it follows that if some films and records for the era were lost, it's possible that Lillian St. Cyr acted in far more than 66 films and that Edwin Carewe directed more than 58 films.

Choice A is incorrect because it doesn't effectively exemplify the idea that the film outputs of the four individuals included in the table should be considered bare minimums. Rather than addressing the idea that the individuals likely had higher outputs than those presented in the table, this choice simply compares data from the table to make the point that Dark Cloud has fewer credited acting roles than Lillian St. Cyr (35 and 66, respectively). *Choice B* is incorrect because it misrepresents data from the table, even though it may exemplify the idea that the film outputs of the four individuals included in the table should be considered bare minimums by implying that Edwin Carewe acted in more than 47 films. The table indicates that Edwin Carewe was active from 1912 to 1934, meaning that his 47 credited acting roles were in films made before or during 1934, not after that time. *Choice D* is incorrect because it doesn't effectively exemplify the idea that the film outputs of the four individuals included in the table should be considered bare minimums. Instead of addressing the idea that the individuals likely had higher outputs than those recorded, this choice

suggests that James Young Deer actually acted in and directed fewer films than presented in the table (only 33 known films as a director instead of 35, and only 10 known films as an actor instead of 33).

QUESTION 11

Choice C is the best answer because it presents the finding that, if true, would best support Suarez, Pérez-Huerta, and Harrell's claim about mosasaurs. The text states that Suarez, Pérez-Huerta, and Harrell's research on mosasaur tooth enamel led them to conclude that mosasaurs were endothermic, which means that they could live in waters at many different temperatures and still maintain a stable body temperature. The researchers claim that endothermy enabled mosasaurs to live in relatively cold waters near the poles. If several mosasaur fossils have been found in areas that were near the poles during the period when mosasaurs were alive and fossils of nonendothermic marine reptiles are rare in such locations, that would support the researchers' claim: it would show that mosasaurs inhabited polar waters but nonendothermic marine mammals tended not to, suggesting that endothermy may have been the characteristic that enabled mosasaurs to include polar waters in their range.

Choice A is incorrect because finding that it's easier to determine mosasaur body temperatures from tooth enamel data than it is to determine nonendothermic reptile body temperatures wouldn't support the researchers' claim. Whether one research process is more difficult than another indicates nothing about the results of those processes and therefore is irrelevant to the issue of where mosasaurs lived and what enabled them to live in those locations. *Choice B* is incorrect because finding roughly equal numbers of mosasaur and nonendothermic marine reptile fossils in areas that were near the poles in the Late Cretaceous would suggest that endothermy didn't give mosasaurs any particular advantage when it came to expanding their range to include relatively cold polar waters, thereby weakening the researchers' claim rather than supporting it. *Choice D* is incorrect because finding that the temperature of seawater in the Late Cretaceous was warmer than seawater today wouldn't weaken the researchers' claim. Seawater in the Late Cretaceous could have been warmer than seawater today but still cold enough for endothermy to be advantageous to mosasaurs, so this finding wouldn't provide enough information to either support or weaken the researchers' claim.

QUESTION 12

Choice D is the best answer because it describes data from the graph that support the researchers' conclusion that there is a growing interest among CEOs in connecting with more departments in their companies. The graph shows the average number of individuals reporting directly to CEOs during three different time periods: the individuals are divided into managers and department leaders. The average number of department leaders directly reporting to their CEO during the 1991–1995 period was slightly more than three, during the 1996–2001 period it was four, and during the 2001–2008 period it was almost seven. Thus, the average number of department leaders reporting directly to their CEO rose over the three periods studied, which suggests that CEOs were connecting with more departments.

Choice A is incorrect because the average number of managers and department leaders reporting directly to their CEO rose for both categories between the 1991–1995 and 2001–2008 periods; thus, it isn't true that the average numbers didn't fluctuate. *Choice B* is incorrect because the average number of managers reporting directly to their CEO was highest in the 2001–2008 period, not in the 1996–2001 period. *Choice C* is incorrect.

Although it correctly describes a feature of the graph, the observation that more department leaders than managers are reporting to CEOs does not by itself address the question of whether CEOs are connecting with more departments over time—to address that question, one needs to know whether the number of department leaders reporting to CEOs is increasing over time.

QUESTION 13

Choice C is the best answer because it presents a finding that, if true, would weaken the astronomers' claim about the makeup of host stars and their planets. The text explains that because stars and planets begin forming from the same gas and dust, astronomers believe planets should be composed of the same materials as their host stars, but in equal or smaller quantities. The finding that the amount of iron in some rocky planets is much higher than the amount in their host star would weaken the astronomers' claim because it would show that some planets contain the same material as their host star, but in higher quantities.

Choice A is incorrect because a finding only about the makeup of stars, whether they've cooled or not, would provide no information about the makeup of planets. Thus, it wouldn't have any bearing on the claim that planets and their host stars are composed of the same materials in differing quantities. *Choice B* is incorrect because a finding about two host stars having similar proportions of certain materials wouldn't provide any information about the makeup of planets. Thus, it wouldn't be relevant to the claim that planets and their host stars are composed of the same materials in differing quantities. *Choice D* is incorrect because the text indicates that the astronomers' claim is based on a fact—that stars and planets begin forming from the same gas and dust in space—which would remain true regardless of the effectiveness of a method for analysis of compositions. The text does cite analysis of rocky planets in our solar system and the Sun, but only as a single piece of evidence that is consistent with the claim and not as the source of the claim; the finding that the method used for that analysis is less effective in other scenarios wouldn't weaken a claim that's based on knowledge of how stars and planets initially form.

QUESTION 14

Choice B is the best answer because it presents a finding that, if true, would most directly support the arts journalist's claim about Enwezor's work as a curator and art historian. In the text, the arts journalist asserts that Enwezor wished not just to focus on modern African artists but also to show "how their work fits into the larger context of global modern art and art history," or how their work relates to artistic developments and work by other artists elsewhere in the world. The description of *Postwar: Art Between the Pacific and the Atlantic, 1945–1965* indicates that Enwezor and Siegel's exhibition brought works by African artists together with works by artists from other countries, thus supporting the arts journalist's claim that Enwezor sought to show works by African artists in a context of global modern art and art history.

Choice A is incorrect because it describes a retrospective that wouldn't support the arts journalist's claim that Enwezor wanted to show how works by modern African artists fit into the larger context of global modern art and art history. The description of *El Anatsui: Triumphant Scale* indicates that the retrospective focused only on the work of a single African artist, El Anatsui. The description doesn't suggest that the exhibition showed how El Anatsui's works fit into a global artistic context. *Choice C* is incorrect because it describes an exhibition that wouldn't support the arts journalist's claim that Enwezor wanted

to show how works by modern African artists relate to the larger context of global modern art and art history. The description of *The Short Century: Independence and Liberation Movements in Africa, 1945–1994* indicates that the exhibition showed how African artists were influenced by movements for independence from European colonial powers following the Second World War. Although this suggests that Enwezor intended the exhibition to place works by African artists in a political context, it doesn't indicate that the works were placed in a global artistic context. *Choice D* is incorrect because it describes an exhibition that wouldn't support the arts journalist's claim that Enwezor wanted to show how works by modern African artists relate to the larger context of global modern art and art history. The description of *In/sight: African Photographers, 1940 to the Present* indicates that the exhibition was intended to reveal the broad range of approaches taken by African photographers, not that the exhibition showed how photography by African artists fits into a global artistic context.

QUESTION 15

Choice D is the best answer because it presents the conclusion that most logically follows from the text's discussion of the challenge researchers face when studying the effects of holding elected office on a person's behavior. The text explains that it's hard for researchers to test for the effects that elected office has on people because finding people to serve as a control group is difficult. The text indicates that a control group needs to be made up of people who share characteristics of the group being tested but don't have the variable being tested (in this case, holding elected office). Because researchers aren't able to influence who wins elections, they're also unable to determine who would serve as an appropriately similar member of a control group. Thus, it logically follows that researchers will find it difficult to identify a group of people who can function as an appropriate control group for their studies.

Choice A is incorrect because the text focuses on the struggle to put together a control group for experiments; it doesn't suggest that finding information about politicians' behavior is difficult. *Choice B* is incorrect because the experiments mentioned in the text are testing the effects of holding elected office on a person's behavior. Studying people who have already held elected office wouldn't provide an opportunity to note any behavioral changes that the position might cause. *Choice C* is incorrect because the text defines people in a control group as those "who are otherwise similar to the office-holders"; selecting people who differ from the office-holders wouldn't fit the criteria for an appropriate control group.

QUESTION 16

Choice A is the best answer because it most logically completes the text. The text explains that the *Cantares Mexicanos* contains poems about the Aztec Empire from before the Spanish invasion. Furthermore, it indicates that notes in the collection attest that some of these poems predate the Spanish invasion, while some customs depicted are likely Spanish in origin. The implication is that some poems were composed before the invasion but the references to Spanish customs could have come about only after the invasion, and thus that the collection includes content that predates the invasion and also content from after the invasion.

Choice B is incorrect because the text clearly indicates that the collection is in Nahuatl, not Spanish, so the compilers' unfamiliarity with Spanish is irrelevant to whether the collection contains material composed after the Spanish invasion. *Choice C* is incorrect because the text mentions only the Aztec Empire and

Spain: there is no information about the relationship of Aztec literature to any traditions other than its own or Spain's. *Choice D* is incorrect because the text states that some of the poems make "inarguable references" to common Spanish customs, which conflicts with the idea that these references can reasonably be attributed to mere coincidence.

QUESTION 17

Choice D is the best answer. The convention being tested is the coordination of main clauses within a sentence. The semicolon is correctly used to join the first main clause ("To humans...prey") and the second main clause ("rather...approach"). Further, the comma after the adverb "rather" is correctly used to separate the adverb from the main clause ("the brightly...approach") it modifies, logically indicating that the information in this clause (how the spider's behavior appears to humans) is contrary to the information in the previous clause (how the spider's behavior does not appear to humans).

Choice A is incorrect because it results in a comma splice. Without a conjunction following it, a comma can't be used in this way to join two main clauses. *Choice B* is incorrect because it results in a run-on sentence. The two main clauses are fused without appropriate punctuation and/or a conjunction. *Choice C* is incorrect. Placing the comma between the first main clause "To humans...prey" and the adverb "rather" illogically indicates that the information in the first main clause is contrary to what came before, which doesn't make sense in this context.

QUESTION 18

Choice D is the best answer. The convention being tested is the use of verbs to express tense in a sentence. In this choice, the past progressive tense verb "was studying" is consistent with the other past tense verbs (e.g., "made" and "collected") used to describe Buratti's discovery. Further, the past progressive tense correctly indicates that an ongoing action in the past was occurring (she was studying) at the same time that another event occurred in the past (she made an interesting discovery).

Choice A is incorrect because the present tense verb "studies" isn't consistent with the past tense verbs used to describe Buratti's discovery. *Choice B* is incorrect because the present perfect progressive tense verb "has been studying" isn't consistent with the past tense verbs used to describe Buratti's discovery. *Choice C* is incorrect because the future tense verb "will study" isn't consistent with the past tense verbs used to describe Buratti's discovery.

QUESTION 19

Choice B is the best answer. The convention being tested is punctuation use between sentences. In this choice, the period after "Bay" is used correctly to mark the boundary between one sentence ("On...Bay") and another sentence that begins with a supplementary phrase ("Having...years"). Here, the supplementary phrase beginning with "having" modifies the subject of the second sentence, "the celebrated ship."

Choice A is incorrect. Without a comma preceding it, the conjunction "and" can't be used in this way to join sentences. *Choice C* is incorrect because it results in a comma splice. A comma can't be used in this way to join two sentences. *Choice D* is incorrect because it results in a run-on sentence. The sentences ("On...Bay" and "having...years") are fused without punctuation and/or a conjunction.

QUESTION 20

Choice A is the best answer. The convention being tested is subject-verb agreement. The singular verb "has enhanced" agrees in number with the singular subject "*A Sheaf Gleaned in French Fields*," which is the title of a book of poems.

Choice B is incorrect because the plural verb "are enhancing" doesn't agree in number with the singular subject "*A Sheaf Gleaned in French Fields*." *Choice C* is incorrect because the plural verb "have enhanced" doesn't agree in number with the singular subject "*A Sheaf Gleaned in French Fields*." *Choice D* is incorrect because the plural verb "enhance" doesn't agree in number with the singular subject "*A Sheaf Gleaned in French Fields*."

QUESTION 21

Choice A is the best answer. The convention being tested is punctuation use between sentences. In this choice, the period after "tombs" is used correctly to mark the boundary between one sentence ("Archaeologist...tombs") and another ("Built...nature").

Choice B is incorrect because it results in a comma splice. A comma can't be used in this way to mark the boundary between sentences. *Choice C* is incorrect. Without a comma preceding it, the conjunction "and" can't be used in this way to join the two sentences. *Choice D* is incorrect because it results in a run-on sentence. The sentences ("Archaeologist...tombs" and "Built...nature") are fused without punctuation and/or a conjunction.

QUESTION 22

Choice C is the best answer. The conventions being tested are punctuation use between titles and proper nouns and between verbs and integrated quotations. No punctuation is needed to set off the proper noun "Stina Chyn" from the title that describes Chyn, "critic." Because "Stina Chyn" is essential information identifying the "critic," no punctuation is necessary. Further, no punctuation is needed between the verb "claims" and the following quotation because the quotation is integrated into the structure of the sentence.

Choice A is incorrect because no punctuation is needed before or after the proper noun "Stina Chyn." Setting the critic's name off with commas suggests that it could be removed without affecting the coherence of the sentence, which isn't the case. *Choice B* is incorrect because no punctuation is needed before or after the proper noun "Stina Chyn." Setting the critic's name off with commas suggests that it could be removed without affecting the coherence of the sentence, which isn't the case. Additionally, no punctuation is needed between "claims" and the integrated quotation. *Choice D* is incorrect because no punctuation is needed between the verb "claims" and its subject, "critic Stina Chyn." Additionally, no punctuation is needed between the verb "claims" and the integrated quotation.

QUESTION 23

Choice B is the best answer. The convention being tested is the punctuation of items in a complex series (a series including internal punctuation). The semicolon after "nonnative" is correctly used to separate the first item ("growing diverse plant species, both native and nonnative") and the second item ("fostering scientific research") in the series of things that botanical gardens are dedicated to. Further, the comma after "species" is correctly used to separate the noun phrase "diverse plant species" and the supplementary phrase "both native and nonnative" that modifies it.

Choice A is incorrect because a comma (specifically, the comma after "nonnative") can't be used in this way to separate items in a complex series. *Choice C* is incorrect because a semicolon can't be used in this way to separate the noun phrase "diverse plant species" and the supplementary phrase "both native and nonnative" that modifies it. Further, a comma can't be used in this way to separate items in a complex series. *Choice D* is incorrect because it fails to use appropriate punctuation to separate the noun phrase "diverse plant species" and the supplementary phrase "both native and nonnative" that modifies it. Further, a comma can't be used in this way to separate items in a complex series.

QUESTION 24

Choice C is the best answer. "However" logically signals that the information in this sentence—that Hammurabi is mainly remembered for just a single achievement, the Code of Hammurabi—is contrary to what might be assumed from the previous information about Hammurabi's many achievements.

Choice A is incorrect because "therefore" illogically signals that the information in this sentence is a result of the previous information about Hammurabi's many achievements. Instead, this sentence makes a point that is contrary to what might be assumed from the previous information. *Choice B* is incorrect because "likewise" illogically signals that the information in this sentence is similar to the previous information about Hammurabi's many achievements. Instead, this sentence makes a point that is contrary to what might be assumed from the previous information. *Choice D* is incorrect because "for instance" illogically signals that this sentence exemplifies the previous information about Hammurabi's many achievements. Instead, this sentence makes a point that is contrary to what might be assumed from the previous information.

QUESTION 25

Choice D is the best answer. "Similarly" logically signals that the information in the sentence—that Dove situates Beulah's life in the context of the US Civil Rights Movement—is similar to the previous information about Thomas and the Great Migration. Both sentences support the first sentence's claim that Dove portrays her characters in the context of broader historical narratives.

Choice A is incorrect because "specifically" illogically signals that the information about Beulah in this sentence provides specific details elaborating on the previous information about Thomas. Instead, it's similar to the previous information about Thomas. *Choice B* is incorrect because "thus" illogically signals that the information about Beulah in this sentence is a result or consequence of the previous information about Thomas. Instead, it's similar to the previous information about Thomas. *Choice C* is incorrect because "regardless" illogically signals that the information about Beulah in this sentence is true despite the previous information about Thomas. Instead, it's similar to the previous information about Thomas.

QUESTION 26

Choice A is the best answer. "Nevertheless" logically signals that the information in this sentence—that the spacesuits Suttirat Larlarb designed for the film *Sunshine* were made in standard sizes in a factory—presents a notable exception to Larlarb's typical approach of custom-fitting garments to actors, which is described in the previous sentence.

Choice B is incorrect because "thus" illogically signals that the information in this sentence is a result or consequence of the previous information about Larlarb's typical approach of custom-fitting garments to actors. Instead,

it presents a notable exception to Larlarb's typical approach. *Choice C* is incorrect because "likewise" illogically signals that the information in this sentence is similar to the previous information about Larlarb's typical approach of custom-fitting garments to actors. Instead, it presents a notable exception to Larlarb's typical approach. *Choice D* is incorrect because "moreover" illogically signals that the information in this sentence merely adds to the previous information about Larlarb's typical approach of custom-fitting garments to actors. Instead, it presents a notable exception to Larlarb's typical approach.

QUESTION 27

Choice D is the best answer. The sentence makes a generalization—that a comet's orbit around the Sun may change over time—and supports the generalization with the example of the orbit of comet 81P/Wild, which once lay between the orbits of Uranus and Jupiter but is now positioned between the orbits of Jupiter and Mars.

Choice A is incorrect. The sentence emphasizes the number of comets orbiting the Sun and makes a generalization about their orbits, but it doesn't support the generalization with an example. *Choice B* is incorrect. The sentence makes a generalization about comets and compares them to the planets Uranus, Jupiter, and Mars; it doesn't make and support a generalization about comets' orbits. *Choice C* is incorrect. While the sentence provides an example of a comet whose orbit has changed, it doesn't make a generalization about the orbits of comets.

Math

Module 1

(22 questions)

QUESTION 1

Choice C is correct. It's given that $x = 7$. Substituting 7 for x into the given expression $x + 20$ yields $7 + 20$, which is equivalent to 27.

Choice A is incorrect. This is the value of $x + 6$. *Choice B* is incorrect. This is the value of $x + 13$. *Choice D* is incorrect. This is the value of $x + 27$.

QUESTION 2

Choice B is correct. The mean of a data set is the sum of the values in the data set divided by the number of values in the data set. It follows that the mean of data set X is $\frac{5 + 9 + 9 + 13}{4}$, or 9, and the mean of data set Y is $\frac{5 + 9 + 9 + 13 + 27}{5}$, or 12.6. Since 9 is less than 12.6, the mean of data set X is less than the mean of data set Y.

Alternate approach: Data set Y consists of the 4 values in data set X and one additional value, 27. Since the additional value, 27, is larger than any value in data set X, the mean of data set X is less than the mean of data set Y.

Choice A is incorrect and may result from conceptual or calculation errors. *Choice C* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 3

Choice B is correct. In similar triangles, corresponding angles are congruent. It's given that right triangles *PQR* and *STU* are similar, where angle *P* corresponds to angle *S*. It follows that angle *P* is congruent to angle *S*. In the triangles shown, angle *R* and angle *U* are both marked as right angles, so angle *R* and angle *U* are corresponding angles. It follows that angle *Q* and angle *T* are corresponding angles, and thus, angle *Q* is congruent to angle *T*. It's given that the measure of angle *Q* is 18°, so the measure of angle *T* is also 18°. Angle *U* is a right angle, so the measure of angle *U* is 90°. The sum of the measures of the interior angles of a triangle is 180°. Thus, the sum of the measures of the interior angles of triangle *STU* is 180 degrees. Let s represent the measure, in degrees, of angle *S*. It follows that $s + 18 + 90 = 180$,

or $s + 108 = 180$. Subtracting 108 from both sides of this equation yields $s = 72$. Therefore, if the measure of angle Q is 18 degrees, then the measure of angle S is 72 degrees.

Choice A is incorrect. This is the measure of angle T.
Choice C is incorrect and may result from conceptual or calculation errors.
Choice D is incorrect. This is the sum of the measures of angle S and angle U.

QUESTION 4

Choice A is correct. It's given that the rocket contained 467,000 kilograms (kg) of propellant before launch and had 362,105 kg remaining exactly 21 seconds after launch. Finding the difference between the amount, in kg, of propellant before launch and the remaining amount, in kg, of propellant after launch gives the amount, in kg, of propellant burned during the 21 seconds: $467{,}000 - 362{,}105 = 104{,}895$. Dividing the amount of propellant burned by the number of seconds yields $\frac{104{,}895}{21} = 4{,}995$. Thus, an average of 4,995 kg of propellant burned each second after launch.

Choice B is incorrect and may result from conceptual or calculation errors.
Choice C is incorrect and may result from conceptual or calculation errors.
Choice D is incorrect and may result from finding the amount of propellant burned, rather than the amount of propellant burned each second.

QUESTION 5

Choice C is correct. It's given that $4x = 20$ and $-3x + y = -7$ is a system of equations with a solution (x, y). Adding the second equation in the given system to the first equation yields $4x + (-3x + y) = 20 + (-7)$, which is equivalent to $x + y = 13$. Thus, the value of $x + y$ is 13.

Choice A is incorrect. This represents the value of $-2(x + y) - 1$. *Choice B* is incorrect. This represents the value of $-(x + y)$. *Choice D* is incorrect. This represents the value of $2(x + y) + 1$.

QUESTION 6

The correct answer is 5. It's given that the equation $10x + 15y = 85$ represents the situation, where x is the number of on-site training courses, y is the number of online training courses, and 85 is the total number of hours of training courses the apprentice has enrolled in. Therefore, $10x$ represents the number of hours the apprentice has enrolled in on-site training courses, and $15y$ represents the number of hours the apprentice has enrolled in online training courses. Since x is the number of on-site training courses and y is the number of online training courses the apprentice has enrolled in, 10 is the number of hours each on-site course takes and 15 is the number of hours each online course takes. Subtracting these numbers gives $15 - 10$, or 5 more hours each online training course takes than each on-site training course.

QUESTION 7

Choice D is correct. The perimeter, P, of a square can be found using the formula $P = 4s$, where s is the length of each side of the square. It's given that square X has a side length of 12 centimeters. Substituting 12 for s in the formula for the perimeter of a square yields $P = 4(12)$, or $P = 48$. Therefore, the perimeter of square X is 48 centimeters. It's also given that the perimeter of square Y is 2 times the perimeter of square X. Therefore, the perimeter of

square Y is 2(48), or 96, centimeters. Substituting 96 for P in the formula $P = 4s$ gives $96 = 4s$. Dividing both sides of this equation by 4 gives $24 = s$. Therefore, the length of one side of square Y is 24 centimeters.

Choice A is incorrect and may result from conceptual or calculation errors. *Choice B* is incorrect and may result from conceptual or calculation errors. *Choice C* is incorrect and may result from conceptual or calculation errors.

QUESTION 8

Choice A is correct. It's given that the function g models the number of gallons that remain from a full gas tank in a car after driving m miles. In the given function $g(m) = -0.05m + 12.1$, the coefficient of m is -0.05. This means that for every increase in the value of m by 1, the value of $g(m)$ decreases by 0.05. It follows that for each mile driven, there is a decrease of 0.05 gallons of gasoline. Therefore, 0.05 gallons of gasoline are used to drive each mile.

Choice B is incorrect and represents the number of gallons of gasoline in a full gas tank. *Choice C* is incorrect and may result from conceptual errors. *Choice D* is incorrect and may result from conceptual errors.

QUESTION 9

The correct answer is 28. The given absolute value equation can be rewritten as two linear equations: $4x - 4 = 112$ and $-(4x - 4) = 112$, or $4x - 4 = -112$. Adding 4 to both sides of the equation $4x - 4 = 112$ results in $4x = 116$. Dividing both sides of this equation by 4 results in $x = 29$. Adding 4 to both sides of the equation $4x - 4 = -112$ results in $4x = -108$. Dividing both sides of this equation by 4 results in $x = -27$. Therefore, the two values of $x - 1$ are $29 - 1$, or 28, and $-27 - 1$, or -28. Thus, the positive value of $x - 1$ is 28.

Alternate approach: The given equation can be rewritten as $|4(x - 1)| = 112$, which is equivalent to $4|x - 1| = 112$. Dividing both sides of this equation by 4 yields $|x - 1| = 28$. This equation can be rewritten as two linear equations: $x - 1 = 28$ and $-(x - 1) = 28$, or $x - 1 = -28$. Therefore, the positive value of $x - 1$ is 28.

QUESTION 10

Choice C is correct. Multiplying each side of the given equation by y yields the equivalent equation $\frac{y}{7b} = 11x$. Dividing each side of this equation by 11 yields $\frac{y}{77b} = x$, or $x = \frac{y}{77b}$.

Choice A is incorrect. This equation is not equivalent to the given equation. *Choice B* is incorrect. This equation is not equivalent to the given equation. *Choice D* is incorrect. This equation is not equivalent to the given equation.

QUESTION 11

The correct answer is 11. It's given that $f(x)$ is defined by the equation $f(x) = mx - 28$, where m is a constant. It's also given in the table that when $x = 10$, $f(x) = 82$. Substituting 10 for x and 82 for $f(x)$ in the equation $f(x) = mx - 28$ yields $82 = m(10) - 28$. Adding 28 to both sides of this equation yields $110 = 10m$. Dividing both sides of this equation by 10 yields $11 = m$. Therefore, the value of m is 11.

QUESTION 12

The correct answer is 9. The given expression can be rewritten as $(5x^3 - 3) + (-1)(-4x^3 + 8)$. By applying the distributive property, this expression can be rewritten as $5x^3 - 3 + 4x^3 + (-8)$, which is equivalent to $(5x^3 + 4x^3) + (-3 + (-8))$. Adding like terms in this expression yields $9x^3 - 11$. Since it's given that $(5x^3 - 3) - (-4x^3 + 8)$ is equivalent to $bx^3 - 11$, it follows that $9x^3 - 11$ is equivalent to $bx^3 - 11$. Therefore, the coefficients of x^3 in these two expressions must be equivalent, and the value of b must be 9.

QUESTION 13

Choice A is correct. It's given that the point $(x, 53)$ is a solution to the given system of inequalities in the xy-plane. This means that the coordinates of the point, when substituted for the variables x and y, make both of the inequalities in the system true. Substituting 53 for y in the inequality $y > 14$ yields $53 > 14$, which is true. Substituting 53 for y in the inequality $4x + y < 18$ yields $4x + 53 < 18$. Subtracting 53 from both sides of this inequality yields $4x < -35$. Dividing both sides of this inequality by 4 yields $x < -8.75$. Therefore, x must be a value less than −8.75. Of the given choices, only −9 is less than −8.75.

Choice B is incorrect. Substituting −5 for x and 53 for y in the inequality $4x + y < 18$ yields $4(-5) + 53 < 18$, or $33 < 18$, which is not true.
Choice C is incorrect. Substituting 5 for x and 53 for y in the inequality $4x + y < 18$ yields $4(5) + 53 < 18$, or $73 < 18$, which is not true.
Choice D is incorrect. Substituting 9 for x and 53 for y in the inequality $4x + y < 18$ yields $4(9) + 53 < 18$, or $89 < 18$, which is not true.

QUESTION 14

Choice D is correct. Let y represent the number of cells per milliliter x hours after the initial observation. Since the number of cells per milliliter doubles every 3 hours, the relationship between x and y can be represented by an exponential equation of the form $y = a(b)^{\frac{x}{k}}$, where a is the number of cells per milliliter during the initial observation and the number of cells per milliliter increases by a factor of b every k hours. It's given that there were 300,000 cells per milliliter during the initial observation. Therefore, $a = 300{,}000$. It's also given that the number of cells per milliliter doubles, or increases by a factor of 2, every 3 hours. Therefore, $b = 2$ and $k = 3$. Substituting 300,000 for a, 2 for b, and 3 for k in the equation $y = a(b)^{\frac{x}{k}}$ yields $y = 300{,}000(2)^{\frac{x}{3}}$. The number of cells per milliliter there will be 15 hours after the initial observation is the value of y in this equation when $x = 15$. Substituting 15 for x in the equation $y = 300{,}000(2)^{\frac{x}{3}}$ yields $y = 300{,}000(2)^{\frac{15}{3}}$, or $y = 300{,}000(2)^5$. This is equivalent to $y = 300{,}000(32)$, or $y = 9{,}600{,}000$. Therefore, 15 hours after the initial observation, there will be 9,600,000 cells per milliliter.

Choice A is incorrect and may result from conceptual or calculation errors.
Choice B is incorrect and may result from conceptual or calculation errors.
Choice C is incorrect and may result from conceptual or calculation errors.

QUESTION 15

Choice D is correct. The y-intercept of the graph is the point at which the graph crosses the y-axis, or the point for which the value of x is 0. Therefore, the y-intercept of the given graph is the point (0, 9). It's given that x represents the number of years since the end of 1992. Therefore, $x = 0$ represents 0 years since the end of 1992, which is the same as the end of 1992. It's also given that y represents the estimated number of catalogs, in thousands, that the company

sent to its customers at the end of the year. Therefore, $y = 9$ represents 9,000 catalogs. It follows that the y-intercept (0, 9) means that the estimated number of catalogs the company sent to its customers at the end of 1992 was 9,000.

Choice A is incorrect and may result from conceptual or calculation errors. *Choice B* is incorrect and may result from conceptual or calculation errors. *Choice C* is incorrect and may result from conceptual or calculation errors.

QUESTION 16

Choice B is correct. For positive values of a and b, $a^m b^m = (ab)^m$, $\sqrt[n]{a} = (a)^{\frac{1}{n}}$, and $(a^j)^k = a^{jk}$. Therefore, the given expression, $\sqrt[7]{x^9 y^9}$, can be rewritten as $\sqrt[7]{(xy)^9}$. This expression is equivalent to $\left((xy)^9\right)^{\frac{1}{7}}$, which can be rewritten as $(xy)^{9 \cdot \frac{1}{7}}$, or $(xy)^{\frac{9}{7}}$.

Choice A is incorrect and may result from conceptual or calculation errors. *Choice C* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 17

Choice C is correct. It's given that the population of City A increased by 7% from 2015 to 2016. Therefore, the population of City A in 2016 includes 100% of the population of City A in 2015 plus an additional 7% of the population of City A in 2015. This means that the population of City A in 2016 is 107% of the population in 2015. Thus, the population of City A in 2016 is $\frac{107}{100}$, or 1.07, times the 2015 population. Therefore, the value of k is 1.07.

Choice A is incorrect. This would be the value of k if the population in 2016 was 7% of the population in 2015. *Choice B* is incorrect. This would be the value of k if the population in 2016 was 70% of the population in 2015. *Choice D* is incorrect. This would be the value of k if the population increased by 70%, not 7%, from 2015 to 2016.

QUESTION 18

Choice C is correct. A system of two linear equations in two variables, x and y, has no solution if the graphs of the lines represented by the equations in the xy-plane are distinct and parallel. The graphs of two lines in the xy-plane represented by equations in slope-intercept form, $y = mx + b$, where m and b are constants, are parallel if their slopes, m, are the same and are distinct if their y-coordinates of the y-intercepts, b, are different. In the equations $y = 16x + 3$ and $y = 16x + 19$, the values of m are each 16, and the values of b are 3 and 19, respectively. Since the slopes of these lines are the same, and the y-coordinates of the y-intercepts are different, it follows that the system of linear equations in choice C has no solution.

Choice A is incorrect. The lines represented by the equations in this system are a vertical line and a horizontal line. Therefore, this system has a solution, (3, 5), rather than no solution. *Choice B* is incorrect. The two lines represented by these equations have different slopes and the same y-coordinate of the y-intercept. Therefore, this system has a solution, (0, 6), rather than no solution. *Choice D* is incorrect. The two lines represented by these equations are a horizontal line and a line with a slope of 5 that have the same y-coordinate of the y-intercept. Therefore, this system has a solution, (0, 5), rather than no solution.

QUESTION 19

Choice D is correct. Since w represents the nth term of the sequence and 9 is the first term of the sequence, the value of w is 9 when the value of n is 1. Since each term after the first is 4 times the preceding term, the value of w is 9(4) when the value of n is 2. Therefore, the value of w is 9(4)(4), or $9(4)^2$, when the value of n is 3. More generally, the value of w is $9(4^{n-1})$ for a given value of n. Therefore, the equation $w = 9(4^{n-1})$ gives w in terms of n.

Choice A is incorrect. This equation describes a sequence for which the first term is 36, rather than 9, and each term after the first is 9, rather than 4, times the preceding term. *Choice B* is incorrect. This equation describes a sequence for which the first term is 4, rather than 9, and each term after the first is 9, rather than 4, times the preceding term. *Choice C* is incorrect. This equation describes a sequence for which the first term is 36, rather than 9.

QUESTION 20

Choice B is correct. It's given that the minimum value of x is 12 less than 6 times another number n. Therefore, the possible values of x are all greater than or equal to the value of 12 less than 6 times n. The value of 6 times n is given by the expression $6n$. The value of 12 less than $6n$ is given by the expression $6n - 12$. Therefore, the possible values of x are all greater than or equal to $6n - 12$. This can be shown by the inequality $x \geq 6n - 12$.

Choice A is incorrect. This inequality shows the possible values of x if the maximum, not the minimum, value of x is 12 less than 6 times n. *Choice C* is incorrect. This inequality shows the possible values of x if the maximum, not the minimum, value of x is 6 times n less than 12, not 12 less than 6 times n. *Choice D* is incorrect. This inequality shows the possible values of x if the minimum value of x is 6 times n less than 12, not 12 less than 6 times n.

QUESTION 21

Choice B is correct. It's given that right triangle RST is similar to triangle UVW, where S corresponds to V and T corresponds to W. It's given that the side lengths of the right triangle RST are $RS = 20$, $ST = 48$, and $TR = 52$. Corresponding angles in similar triangles are equal. It follows that the measure of angle T is equal to the measure of angle W. The hypotenuse of a right triangle is the longest side. It follows that the hypotenuse of triangle RST is side TR. The hypotenuse of a right triangle is the side opposite the right angle. Therefore, angle S is a right angle. The adjacent side of an acute angle in a right triangle is the side closest to the angle that is not the hypotenuse. It follows that the adjacent side of angle T is side ST. The opposite side of an acute angle in a right triangle is the side across from the acute angle. It follows that the opposite side of angle T is side RS. The tangent of an acute angle in a right triangle is the ratio of the length of the opposite side to the length of the adjacent side. Therefore, $\tan T = \frac{RS}{ST}$. Substituting 20 for RS and 48 for ST in this equation yields $\tan T = \frac{20}{48}$, or $\tan T = \frac{5}{12}$. The tangents of two acute angles with equal measures are equal. Since the measure of angle T is equal to the measure of angle W, it follows that $\tan T = \tan W$. Substituting $\frac{5}{12}$ for $\tan T$ in this equation yields $\frac{5}{12} = \tan W$. Therefore, the value of $\tan W$ is $\frac{5}{12}$.

Choice A is incorrect. This is the value of $\sin W$. *Choice C* is incorrect. This is the value of $\cos W$. *Choice D* is incorrect. This is the value of $\frac{1}{\tan W}$.

QUESTION 22

The correct answer is $\frac{59}{9}$. When the graph of an equation in the form $Ax + By = C$, where A, B, and C are constants, is translated down k units in the xy-plane, the resulting graph can be represented by the equation $Ax + B(y + k) = C$. It's given that the graph of $9x - 10y = 19$ is translated down 4 units in the xy-plane. Therefore, the resulting graph can be represented by the equation $9x - 10(y + 4) = 19$, or $9x - 10y - 40 = 19$. Adding 40 to both sides of this equation yields $9x - 10y = 59$. The x-coordinate of the x-intercept of the graph of an equation in the xy-plane is the value of x in the equation when $y = 0$. Substituting 0 for y in the equation $9x - 10y = 59$ yields $9x - 10(0) = 59$, or $9x = 59$. Dividing both sides of this equation by 9 yields $x = \frac{59}{9}$. Therefore, the x-coordinate of the x-intercept of the resulting graph is $\frac{59}{9}$. Note that 59/9, 6.555, and 6.556 are examples of ways to enter a correct answer.

Math

Module 2

(22 questions)

QUESTION 1

Choice A is correct. It's given that 20% of the students surveyed responded that they intend to enroll in the study program. Therefore, the proportion of students in Spanish club who intend to enroll in the study program, based on the survey, is 0.20. Since there are 55 total students in Spanish club, the best estimate for the total number of these students who intend to enroll in the study program is 55(0.20), or 11.

Choice B is incorrect. This is the best estimate for the percentage, rather than the total number, of students in Spanish club who intend to enroll in the study program. *Choice C* is incorrect. This is the best estimate for the total number of Spanish club students who do not intend to enroll in the study program. *Choice D* is incorrect. This is the total number of students in Spanish club.

QUESTION 2

Choice B is correct. It's given that it takes the machine 10 minutes to make a large box. It's also given that x represents the possible number of large boxes the machine can make each day. Multiplying 10 by x gives $10x$, which represents the amount of time spent making large boxes. It's given that it takes the machine 5 minutes to make a small box. It's also given that y represents the possible number of small boxes the machine can make each day. Multiplying 5 by y gives $5y$, which represents the amount of time spent making small boxes. Combining the amount of time spent making x large boxes and y small boxes yields $10x + 5y$. It's given that the machine makes boxes for a total of 700 minutes each day. Therefore $10x + 5y = 700$ represents the possible number of large boxes, x, and small boxes, y, the machine can make each day.

Choice A is incorrect and may result from associating the time of 10 minutes with small, rather than large, boxes and the time of 5 minutes with large, rather than small, boxes. *Choice C* is incorrect and may result from conceptual errors. *Choice D* is incorrect and may result from conceptual errors.

QUESTION 3

Choice B is correct. The line of best fit shown intersects the y-axis at a positive y-value and has a negative slope. The graph of an equation of the form $y = a + bx$, where a and b are constants, intersects the y-axis at a y-value of a and has a slope of b. Of the given choices, only choice B represents a line that intersects the y-axis at a positive y-value, 13.5, and has a negative slope, −0.8.

Choice A is incorrect. This equation represents a line that has a positive slope, not a negative slope. *Choice C* is incorrect. This equation represents a line that intersects the *y*-axis at a negative *y*-value, not a positive *y*-value, and has a positive slope, not a negative slope. *Choice D* is incorrect. This equation represents a line that intersects the *y*-axis at a negative *y*-value, not a positive *y*-value.

QUESTION 4

Choice C is correct. It's given from the graph that the points (0, 7) and (8, 0) lie on the line. For two points on a line, (x_1, y_1) and (x_2, y_2), the slope of the line can be calculated using the slope formula $m = \frac{y_2 - y_1}{x_2 - x_1}$. Substituting (0, 7) for (x_1, y_1) and (8, 0) for (x_2, y_2) in this formula, the slope of the line can be calculated as $m = \frac{0 - 7}{8 - 0}$, or $m = -\frac{7}{8}$. It's also given that the point $(d, 4)$ lies on the line. Substituting $(d, 4)$ for (x_1, y_1), (8, 0) for (x_2, y_2), and $-\frac{7}{8}$ for m in the slope formula yields $-\frac{7}{8} = \frac{0 - 4}{8 - d}$, or $-\frac{7}{8} = \frac{-4}{8 - d}$. Multiplying both sides of this equation by $8 - d$ yields $-\frac{7}{8}(8 - d) = -4$. Expanding the left-hand side of this equation yields $-7 + \frac{7}{8}d = -4$. Adding 7 to both sides of this equation yields $\frac{7}{8}d = 3$. Multiplying both sides of this equation by $\frac{8}{7}$ yields $d = \frac{24}{7}$. Thus, the value of d is $\frac{24}{7}$.

Choice A is incorrect. This is the value of y when $x = 4$. *Choice B* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 5

Choice D is correct. The equation of a quadratic function can be written in the form $f(x) = a(x - h)^2 + k$, where a, h, and k are constants. It's given in the table that when $x = -1$, the corresponding value of $f(x)$ is 10. Substituting -1 for x and 10 for $f(x)$ in the equation $f(x) = a(x - h)^2 + k$ gives $10 = a(-1 - h)^2 + k$, which is equivalent to $10 = a(1 + 2h + h^2) + k$, or $10 = a + 2ah + ah^2 + k$. It's given in the table that when $x = 0$, the corresponding value of $f(x)$ is 14. Substituting 0 for x and 14 for $f(x)$ in the equation $f(x) = a(x - h)^2 + k$ gives $14 = a(0 - h)^2 + k$, or $14 = ah^2 + k$. It's given in the table that when $x = 1$, the corresponding value of $f(x)$ is 20. Substituting 1 for x and 20 for $f(x)$ in the equation $f(x) = a(x - h)^2 + k$ gives $20 = a(1 - h)^2 + k$, which is equivalent to $20 = a(1 - 2h + h^2) + k$, or $20 = a - 2ah + ah^2 + k$. Adding $20 = a - 2ah + ah^2 + k$ to the equation $10 = a + 2ah + ah^2 + k$ gives $30 = 2a + 2ah^2 + 2k$. Dividing both sides of this equation by 2 gives $15 = a + ah^2 + k$. Since $14 = ah^2 + k$, substituting 14 for $ah^2 + k$ into the equation $15 = a + ah^2 + k$ gives $15 = a + 14$. Subtracting 14 from both sides of this equation gives $a = 1$. Substituting 1 for a in the equations $14 = ah^2 + k$ and $20 = ah^2 - 2ah + a + k$ gives $14 = h^2 + k$ and $20 = 1 - 2h + h^2 + k$, respectively. Since $14 = h^2 + k$, substituting 14 for $h^2 + k$ in the equation $20 = 1 - 2h + h^2 + k$ gives $20 = 1 - 2h + 14$, or $20 = 15 - 2h$. Subtracting 15 from both sides of this equation gives $5 = -2h$. Dividing both sides of this equation by -2 gives $-\frac{5}{2} = h$. Substituting $-\frac{5}{2}$ for h into the equation $14 = h^2 + k$ gives $14 = \left(-\frac{5}{2}\right)^2 + k$, or $14 = \frac{25}{4} + k$. Subtracting $\frac{25}{4}$ from both sides of this equation gives $\frac{31}{4} = k$. Substituting 1 for a, $-\frac{5}{2}$ for h, and $\frac{31}{4}$ for k

in the equation $f(x) = a(x - h)^2 + k$ gives $f(x) = \left(x + \frac{5}{2}\right)^2 + \frac{31}{4}$, which is equivalent to $f(x) = x^2 + 5x + \frac{25}{4} + \frac{31}{4}$, or $f(x) = x^2 + 5x + 14$. Therefore, $f(x) = x^2 + 5x + 14$ defines f.

Choice A is incorrect. If $f(x) = 3x^2 + 3x + 14$, then when $x = -1$, the corresponding value of $f(x)$ is 14, not 10. *Choice B* is incorrect. If $f(x) = 5x^2 + x + 14$, then when $x = -1$, the corresponding value of $f(x)$ is 18, not 10. *Choice C* is incorrect. If $f(x) = 9x^2 - x + 14$, then when $x = -1$, the corresponding value of $f(x)$ is 24, not 10, and when $x = 1$, the corresponding value of $f(x)$ is 22, not 20.

QUESTION 6

Choice C is correct. It's given that $f(x) = \frac{x + 15}{5}$ and $f(a) = 10$, where a is a constant. Therefore, for the given function f, when $x = a$, $f(x) = 10$. Substituting a for x and 10 for $f(x)$ in the given function f yields $10 = \frac{a + 15}{5}$. Multiplying both sides of this equation by 5 yields $50 = a + 15$. Subtracting 15 from both sides of this equation yields $35 = a$. Therefore, the value of a is 35.

Choice A is incorrect. This is the value of a if $f(a) = 4$. *Choice B* is incorrect. This is the value of a if $f(a) = 5$. *Choice D* is incorrect. This is the value of a if $f(a) = 16$.

QUESTION 7

Choice C is correct. Vertical angles, which are angles that are opposite each other when two lines intersect, are congruent. The figure shows that lines t and m intersect. It follows that the angle with measure $x°$ and the angle with measure $y°$ are vertical angles, so $x = y$. It's given that $x = 6k + 13$ and $y = 8k - 29$. Substituting $6k + 13$ for x and $8k - 29$ for y in the equation $x = y$ yields $6k + 13 = 8k - 29$. Subtracting $6k$ from both sides of this equation yields $13 = 2k - 29$. Adding 29 to both sides of this equation yields $42 = 2k$, or $2k = 42$. Dividing both sides of this equation by 2 yields $k = 21$. It's given that lines m and n are parallel, and the figure shows that lines m and n are intersected by a transversal, line t. If two parallel lines are intersected by a transversal, then the same-side interior angles are supplementary. It follows that the same-side interior angles with measures $y°$ and $z°$ are supplementary, so $y + z = 180$. Substituting $8k - 29$ for y in this equation yields $8k - 29 + z = 180$. Substituting 21 for k in this equation yields $8(21) - 29 + z = 180$, or $139 + z = 180$. Subtracting 139 from both sides of this equation yields $z = 41$. Therefore, the value of z is 41.

Choice A is incorrect and may result from conceptual or calculation errors. *Choice B* is incorrect. This is the value of k, not z. *Choice D* is incorrect. This is the value of x or y, not z.

QUESTION 8

Choice C is correct. It's given that line r is perpendicular to line p in the xy-plane. This means that the slope of line r is the negative reciprocal of the slope of line p. If the equation for line p is rewritten in slope-intercept form $y = mx + b$, where m and b are constants, then m is the slope of the line and $(0, b)$ is its y-intercept. Subtracting $18x$ from both sides of the equation $2y + 18x = 9$ yields $2y = -18x + 9$. Dividing both sides of this equation by

2 yields $y = -9x + \frac{9}{2}$. It follows that the slope of line p is -9. The negative reciprocal of a number is -1 divided by the number. Therefore, the negative reciprocal of -9 is $\frac{-1}{-9}$, or $\frac{1}{9}$. Thus, the slope of line r is $\frac{1}{9}$.

Choice A is incorrect. This is the slope of line p, not line r. *Choice B* is incorrect. This is the reciprocal, not the negative reciprocal, of the slope of line p. *Choice D* is incorrect. This is the negative, not the negative reciprocal, of the slope of line p.

QUESTION 9

Choice A is correct. It's given that the sample is in the shape of a cube with edge lengths of 0.9 meters. Therefore, the volume of the sample is 0.90^3, or 0.729, cubic meters. It's also given that the sample has a density of 807 kilograms per 1 cubic meter. Therefore, the mass of this sample is 0.729 cubic meters $\left(\frac{807 \text{ kilograms}}{1 \text{ cubic meter}}\right)$, or 588.303 kilograms. Rounding this mass to the nearest whole number gives 588 kilograms. Therefore, to the nearest whole number, the mass, in kilograms, of this sample is 588.

Choice B is incorrect and may result from conceptual or calculation errors. *Choice C* is incorrect and may result from conceptual or calculation errors. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 10

Choice C is correct. It's given that the function P models the population of the city t years after 2005. Since there are 12 months in a year, 18 months is equivalent to $\frac{18}{12}$ years. Therefore, the expression $\frac{18}{12}x$ can represent the number of years in x 18-month periods. Substituting $\frac{18}{12}x$ for t in the given equation yields $P\left(\frac{18}{12}x\right) = 290(1.04)^{\left(\frac{4}{6}\right)\left(\frac{18}{12}x\right)}$, which is equivalent to $P\left(\frac{18}{12}x\right) = 290(1.04)^x$. Therefore, for each 18-month period, the predicted population of the city is 1.04 times, or 104% of, the previous population. This means that the population is predicted to increase by 4% every 18 months.

Choice A is incorrect and may result from conceptual or calculation errors. *Choice B* is incorrect. Each year, the predicted population of the city is 1.04 times the previous year's predicted population, which is not the same as an increase of 1.04%. *Choice D* is incorrect and may result from conceptual or calculation errors.

QUESTION 11

The correct answer is $-\frac{14}{15}$. A linear equation in the form $ax + b = cx + d$ has no solution only when the coefficients of x on each side of the equation are equal and the constant terms are not equal. Dividing both sides of the given equation by 2 yields $kx - n = -\frac{28}{30}x - \frac{36}{38}$, or $kx - n = -\frac{14}{15}x - \frac{18}{19}$. Since it's given that the equation has no solution, the coefficient of x on both sides of this equation must be equal, and the constant terms on both sides of this equation must

not be equal. Since $\frac{18}{19} < 1$, and it's given that $n > 1$, the second condition is true. Thus, k must be equal to $-\frac{14}{15}$. Note that −14/15, −.9333, and −0.933 are examples of ways to enter a correct answer.

QUESTION 12

The correct answer is 4.06. It's given that the retail price is 290% of the wholesale price of $7.00. Thus, the retail price is $\$7.00\left(\frac{290}{100}\right)$, which is equivalent to $7.00(2.9), or $20.30. It's also given that the discounted price is 80% off the retail price. Thus, the discounted price is $\$20.30\left(1 - \frac{80}{100}\right)$, which is equivalent to $20.30(0.20), or $4.06.

QUESTION 13

The correct answer is 289. A quadratic equation of the form $ax^2 + bx + c = 0$, where a, b, and c are constants, has no real solutions when the value of the discriminant, $b^2 - 4ac$, is less than 0. In the given equation, $x^2 - 34x + c = 0$, $a = 1$ and $b = -34$. Therefore, the discriminant of the given equation can be expressed as $(-34)^2 - 4(1)(c)$, or $1{,}156 - 4c$. It follows that the given equation has no real solutions when $1{,}156 - 4c < 0$. Adding $4c$ to both sides of this inequality yields $1{,}156 < 4c$. Dividing both sides of this inequality by 4 yields $289 < c$, or $c > 289$. It's given that the equation $x^2 - 34x + c = 0$ has no real solutions when $c > n$. Therefore, the least possible value of n is 289.

QUESTION 14

The correct answer is 44. The mean of a data set is computed by dividing the sum of the values in the data set by the number of values in the data set. It's given that data set A consists of the heights of 75 buildings and has a mean of 32 meters. This can be represented by the equation $\frac{x}{75} = 32$, where x represents the sum of the heights of the buildings, in meters, in data set A. Multiplying both sides of this equation by 75 yields $x = 75(32)$, or $x = 2{,}400$ meters. Therefore, the sum of the heights of the buildings in data set A is 2,400 meters. It's also given that data set B consists of the heights of 50 buildings and has a mean of 62 meters. This can be represented by the equation $\frac{y}{50} = 62$, where y represents the sum of the heights of the buildings, in meters, in data set B. Multiplying both sides of this equation by 50 yields $y = 50(62)$, or $y = 3{,}100$ meters. Therefore, the sum of the heights of the buildings in data set B is 3,100 meters. Since it's given that data set C consists of the heights of the 125 buildings from data sets A and B, it follows that the mean of data set C is the sum of the heights of the buildings, in meters, in data sets A and B divided by the number of buildings represented in data sets A and B, or $\frac{2{,}400 + 3{,}100}{125}$, which is equivalent to 44 meters. Therefore, the mean, in meters, of data set C is 44.

QUESTION 15

Choice D is correct. It's given that $4x^2 + bx - 45$ can be rewritten as $(hx + k)(x + j)$. The expression $(hx + k)(x + j)$ can be rewritten as $hx^2 + jhx + kx + kj$, or $hx^2 + (jh + k)x + kj$. Therefore, $hx^2 + (jh + k)x + kj$ is equivalent to $4x^2 + bx - 45$.

It follows that $kj = -45$. Dividing each side of this equation by k yields $j = \frac{-45}{k}$. Since j is an integer, $-\frac{45}{k}$ must be an integer. Therefore, $\frac{45}{k}$ must also be an integer.

Choice A is incorrect and may result from conceptual or calculation errors.
Choice B is incorrect and may result from conceptual or calculation errors.
Choice C is incorrect and may result from conceptual or calculation errors.

QUESTION 16

The correct answer is $\frac{29}{2}$. According to the first equation in the given system, the value of y is -1.5. Substituting -1.5 for y in the second equation in the given system yields $-1.5 = x^2 + 8x + a$. Adding 1.5 to both sides of this equation yields $0 = x^2 + 8x + a + 1.5$. If the given system has exactly one distinct real solution, it follows that $0 = x^2 + 8x + a + 1.5$ has exactly one distinct real solution. A quadratic equation in the form $0 = px^2 + qx + r$, where p, q, and r are constants, has exactly one distinct real solution if and only if the discriminant, $q^2 - 4pr$, is equal to 0. The equation $0 = x^2 + 8x + a + 1.5$ is in this form, where $p = 1$, $q = 8$, and $r = a + 1.5$. Therefore, the discriminant of the equation $0 = x^2 + 8x + a + 1.5$ is $(8)^2 - 4(1)(a + 1.5)$, or $58 - 4a$. Setting the discriminant equal to 0 to solve for a yields $58 - 4a = 0$. Adding $4a$ to both sides of this equation yields $58 = 4a$. Dividing both sides of this equation by 4 yields $\frac{58}{4} = a$, or $\frac{29}{2} = a$. Therefore, if the given system of equations has exactly one distinct real solution, the value of a is $\frac{29}{2}$. Note that 29/2 and 14.5 are examples of ways to enter a correct answer.

QUESTION 17

Choice C is correct. The median of a data set with an odd number of values, in ascending or descending order, is the middle value of the data set, and the range of a data set is the positive difference between the maximum and minimum values in the data set. Since the dot plot shown gives the values in data set A in ascending order and there are 15 values in the data set, the eighth value in data set A, 23, is the median. The maximum value in data set A is 26 and the minimum value is 22, so the range of data set A is 26 − 22, or 4. It's given that data set B is created by adding 56 to each of the values in data set A. Increasing each of the 15 values in data set A by 56 will also increase its median value by 56 making the median of data set B 79. Increasing each value of data set A by 56 does not change the range, since the maximum value of data set B is 26 + 56, or 82, and the minimum value is 22 + 56, or 78, making the range of data set B 82 − 78, or 4. Therefore, the median of data set B is greater than the median of data set A, and the range of data set B is equal to the range of data set A.

Choice A is incorrect and may result from conceptual or calculation errors.
Choice B is incorrect and may result from conceptual or calculation errors.
Choice D is incorrect and may result from conceptual or calculation errors.

QUESTION 18

Choice C is correct. It's given that $f(x) = \frac{a}{x + b}$ and that the graph shown is a partial graph of $y = f(x)$. Substituting y for $f(x)$ in the equation $f(x) = \frac{a}{x + b}$ yields $y = \frac{a}{x + b}$. The graph passes through the point $(-7, -2)$. Substituting -7 for x and -2 for y in the equation $y = \frac{a}{x + b}$ yields $-2 = \frac{a}{-7 + b}$. Multiplying each side of this equation by $-7 + b$ yields $-2(-7 + b) = a$, or $14 - 2b = a$. The graph also passes through the point $(-5, -6)$. Substituting -5 for x and -6 for y in the equation $y = \frac{a}{x + b}$ yields $-6 = \frac{a}{-5 + b}$. Multiplying each side of this equation by $-5 + b$ yields $-6(-5 + b) = a$, or $30 - 6b = a$. Substituting $14 - 2b$ for a in this equation yields $30 - 6b = 14 - 2b$. Adding $6b$ to each side of this equation yields $30 = 14 + 4b$. Subtracting 14 from each side of this equation yields $16 = 4b$. Dividing each side of this equation by 4 yields $4 = b$. Substituting 4 for b in the equation $14 - 2b = a$ yields $14 - 2(4) = a$, or $6 = a$. Substituting 6 for a and 4 for b in the equation $f(x) = \frac{a}{x + b}$ yields $f(x) = \frac{6}{x + 4}$. It's given that $g(x) = f(x + 4)$. Substituting $x + 4$ for x in the equation $f(x) = \frac{6}{x + 4}$ yields $f(x + 4) = \frac{6}{x + 4 + 4}$, which is equivalent to $f(x + 4) = \frac{6}{x + 8}$. It follows that $g(x) = \frac{6}{x + 8}$.

Choice A is incorrect. This could define function g if $g(x) = f(x - 4)$. *Choice B* is incorrect. This could define function g if $g(x) = f(x)$. *Choice D* is incorrect. This could define function g if $g(x) = f(x) \cdot (x + 4)$.

QUESTION 19

Choice A is correct. The left-hand side of the given equation is the expression $57x^2 + (57b + a)x + ab$. Applying the distributive property to this expression yields $57x^2 + 57bx + ax + ab$. Since the first two terms of this expression have a common factor of $57x$ and the last two terms of this expression have a common factor of a, this expression can be rewritten as $57x(x + b) + a(x + b)$. Since the two terms of this expression have a common factor of $(x + b)$, it can be rewritten as $(x + b)(57x + a)$. Therefore, the given equation can be rewritten as $(x + b)(57x + a) = 0$. By the zero product property, it follows that $x + b = 0$ or $57x + a = 0$. Subtracting b from both sides of the equation $x + b = 0$ yields $x = -b$. Subtracting a from both sides of the equation $57x + a = 0$ yields $57x = -a$. Dividing both sides of this equation by 57 yields $x = \frac{-a}{57}$. Therefore, the solutions to the given equation are $-b$ and $\frac{-a}{57}$. It follows that the product of the solutions of the given equation is $(-b)\left(\frac{-a}{57}\right)$, or $\frac{ab}{57}$. It's given that the product of the solutions of the given equation is kab. It follows that $\frac{ab}{57} = kab$, which can also be written as $ab\left(\frac{1}{57}\right) = ab(k)$. It's given that a and b are positive constants. Therefore, dividing both sides of the equation $ab\left(\frac{1}{57}\right) = ab(k)$ by ab yields $\frac{1}{57} = k$. Thus, the value of k is $\frac{1}{57}$.

Choice B is incorrect and may result from conceptual or calculation errors.
Choice C is incorrect and may result from conceptual or calculation errors.
Choice D is incorrect and may result from conceptual or calculation errors.

QUESTION 20

The correct answer is 10. It's given that the graph of $x^2 + x + y^2 + y = \frac{199}{2}$ in the xy-plane is a circle. The equation of a circle in the xy-plane can be written in the form $(x - h)^2 + (y - k)^2 = r^2$, where the coordinates of the center of the circle are (h, k) and the length of the radius of the circle is r. The term $(x - h)^2$ in this equation can be obtained by adding the square of half the coefficient of x to both sides of the given equation to complete the square. The coefficient of x is 1. Half the coefficient of x is $\frac{1}{2}$. The square of half the coefficient of x is $\frac{1}{4}$. Adding $\frac{1}{4}$ to each side of $(x^2 + x) + (y^2 + y) = \frac{199}{2}$ yields $\left(x^2 + x + \frac{1}{4}\right) + (y^2 + y) = \frac{199}{2} + \frac{1}{4}$, or $\left(x + \frac{1}{2}\right)^2 + (y^2 + y) = \frac{199}{2} + \frac{1}{4}$. Similarly, the term $(y - k)^2$ can be obtained by adding the square of half the coefficient of y to both sides of this equation, which yields $\left(x + \frac{1}{2}\right)^2 + \left(y^2 + y + \frac{1}{4}\right) = \frac{199}{2} + \frac{1}{4} + \frac{1}{4}$, or $\left(x + \frac{1}{2}\right)^2 + \left(y + \frac{1}{2}\right)^2 = \frac{199}{2} + \frac{1}{4} + \frac{1}{4}$. This equation is equivalent to $\left(x + \frac{1}{2}\right)^2 + \left(y + \frac{1}{2}\right)^2 = 100$, or $\left(x + \frac{1}{2}\right)^2 + \left(y + \frac{1}{2}\right)^2 = 10^2$.

Therefore, the length of the circle's radius is 10.

QUESTION 21

Choice B is correct. Let x represent the side length, in cm, of each square base. If the two prisms are glued together along a square base, the resulting prism has a surface area equal to twice the surface area of one of the prisms, minus the area of the two square bases that are being glued together, which yields $2K - 2x^2$ cm^2. It's given that this resulting surface area is equal to $\frac{92}{47}K$ cm^2, so $2K - 2x^2 = \frac{92}{47}K$. Subtracting $\frac{92}{47}K$ from both sides of this equation yields $2K - \frac{92}{47}K - 2x^2 = 0$. This equation can be rewritten by multiplying $2K$ on the left-hand side by $\frac{47}{47}$, which yields $\frac{94}{47}K - \frac{92}{47}K - 2x^2 = 0$, or $\frac{2}{47}K - 2x^2 = 0$. Adding $2x^2$ to both sides of this equation yields $\frac{2}{47}K = 2x^2$. Multiplying both sides of this equation by $\frac{47}{2}$ yields $K = 47x^2$. The surface area K, in cm^2, of each rectangular prism is equivalent to the sum of the areas of the two square bases and the areas of the four lateral faces. Since the height of each rectangular prism is 90 cm and the side length of each square base is x cm, it follows that the area of each square base is x^2 cm^2 and the area of each lateral face is $90x$ cm^2. Therefore, the surface area of each rectangular prism can be represented by the expression $2x^2 + 4(90x)$, or $2x^2 + 360x$. Substituting this expression for K in the equation $K = 47x^2$ yields $2x^2 + 360x = 47x^2$. Subtracting $2x^2$ and $360x$ from both sides of this equation yields $0 = 45x^2 - 360x$. Factoring x from the right-hand side of this equation yields $0 = x(45x - 360)$. Applying the zero product property, it follows that $x = 0$ and $45x - 360 = 0$. Adding 360 to both sides of the equation $45x - 360 = 0$ yields $45x = 360$. Dividing both sides of this equation by 45 yields $x = 8$. Since a side length of a rectangular prism can't be 0, the length of each square base is 8 cm.

Choice A is incorrect and may result from conceptual or calculation errors.
Choice C is incorrect and may result from conceptual or calculation errors.
Choice D is incorrect and may result from conceptual or calculation errors.

QUESTION 22

Choice D is correct. The equation of a parabola in the xy-plane can be written in the form $y = a(x - h)^2 + k$, where a is a constant and (h, k) is the vertex of the parabola. If a is positive, the parabola will open upward, and if a is negative, the parabola will open downward. It's given that the parabola has vertex $(9, -14)$. Substituting 9 for h and -14 for k in the equation $y = a(x - h)^2 + k$ gives $y = a(x - 9)^2 - 14$, which can be rewritten as $y = a(x - 9)(x - 9) - 14$, or $y = a(x^2 - 18x + 81) - 14$. Distributing the factor of a on the right-hand side of this equation yields $y = ax^2 - 18ax + 81a - 14$. Therefore, the equation of the parabola, $y = ax^2 - 18ax + 81a - 14$, can be written in the form $y = ax^2 + bx + c$, where $a = a$, $b = -18a$, and $c = 81a - 14$. Substituting $-18a$ for b and $81a - 14$ for c in the expression $a + b + c$ yields $(a) + (-18a) + (81a - 14)$, or $64a - 14$. Since the vertex of the parabola, $(9, -14)$, is below the x-axis, and it's given that the parabola intersects the x-axis at two points, the parabola must open upward. Therefore, the constant a must have a positive value. Setting the expression $64a - 14$ equal to the value in choice D yields $64a - 14 = -12$. Adding 14 to both sides of this equation yields $64a = 2$. Dividing both sides of this equation by 64 yields $a = \frac{2}{64}$, which is a positive value. Therefore, if the equation of the parabola is written in the form $y = ax^2 + bx + c$, where a, b, and c are constants, the value of $a + b + c$ could be -12.

Choice A is incorrect. If the equation of a parabola with a vertex at $(9, -14)$ is written in the form $y = ax^2 + bx + c$, where a, b, and c are constants and $a + b + c = -23$, then the value of a will be negative, which means the parabola will open downward, not upward, and will intersect the x-axis at zero points, not two points. *Choice B* is incorrect. If the equation of a parabola with a vertex at $(9, -14)$ is written in the form $y = ax^2 + bx + c$, where a, b, and c are constants and $a + b + c = -19$, then the value of a will be negative, which means the parabola will open downward, not upward, and will intersect the x-axis at zero points, not two points. *Choice C* is incorrect. If the equation of a parabola with a vertex at $(9, -14)$ is written in the form $y = ax^2 + bx + c$, where a, b, and c are constants and $a + b + c = -14$, then the value of a will be 0, which is inconsistent with the equation of a parabola.

SAT Practice Test Worksheet: Answer Key

Mark each of your correct answers below, then add them up to get your raw score on each module.

Reading and Writing

Module 1

QUESTION #	CORRECT	MARK YOUR CORRECT ANSWERS
1	B	
2	B	
3	A	
4	B	
5	A	
6	D	
7	A	
8	A	
9	D	
10	B	
11	C	
12	B	
13	B	
14	D	
15	D	
16	B	
17	C	
18	A	
19	D	
20	D	
21	D	
22	C	
23	D	
24	A	
25	C	
26	D	
27	C	

Module 2

QUESTION #	CORRECT	MARK YOUR CORRECT ANSWERS
1	B	
2	B	
3	C	
4	C	
5	D	
6	A	
7	A	
8	C	
9	B	
10	C	
11	C	
12	D	
13	C	
14	B	
15	D	
16	A	
17	D	
18	D	
19	B	
20	A	
21	A	
22	C	
23	B	
24	C	
25	D	
26	A	
27	D	

Math

Module 1

QUESTION #	CORRECT	MARK YOUR CORRECT ANSWERS
1	C	
2	B	
3	B	
4	A	
5	C	
6	5	
7	D	
8	A	
9	28	
10	C	
11	11	
12	9	
13	A	
14	D	
15	D	
16	B	
17	C	
18	C	
19	D	
20	B	
21	B	
22	6.555, 6.556, 59/9	

Module 2

QUESTION #	CORRECT	MARK YOUR CORRECT ANSWERS
1	A	
2	B	
3	B	
4	C	
5	D	
6	C	
7	C	
8	C	
9	A	
10	C	
11	-.9333, -14/15	
12	4.06	
13	289	
14	44	
15	D	
16	14.5, 29/2	
17	C	
18	C	
19	A	
20	10	
21	B	
22	D	

READING AND WRITING SECTION RAW SCORE
(Total # of Correct Answers, Excluding Grayed-Out Rows)

Module 1 | Module 2

MATH SECTION RAW SCORE
(Total # of Correct Answers, Excluding Grayed-Out Rows)

Module 1 | Module 2