

1. **Level:** Medium | **Skill/Knowledge:** Words in Context

Key Explanation: Choice B is the best answer. The blank is a verb that shows what the Bank of America did to the first modern credit card. Choice B refers to distributing something for use or sale, so aptly shows that the credit cards were first given out to customers in 1958.

Distractor Explanations: Choice A is incorrect because it refers to sending something away with a purpose, such as sending an order to an army. It does not refer to selling something or making something available to many people.

Choice C is incorrect because it refers to putting something into someone's care. Choice D refers to distributing the parts of a whole, such as allocating funds.

2. **Level:** Easy | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Words in Context

Key Explanation: Choice A is the best answer because "removing" is a verb that shows what Mr. Dashwood cannot do to the furniture. Choice A refers to carrying objects from one place to another, which fits the context of saying that Mr. Dashwood cannot "be of service" or "help" his mother move the furniture to a new house that is too far away.

Distractor Explanation: None of the other choices fits the context of explaining that Mr. Dashwood cannot help take the furniture to a faraway place. Choices B and D refer to disconnecting something, such as removing a part that is fastened in some way. Choice C refers to ordering or sending something away. None of these choices contain the idea of taking the

possessions to a new location.

3. **Level:** Hard | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Words in Context

Key Explanation: Choice A is the best answer. "Peculiar" is used to describe Caravaggio's style, which is elsewhere described as "distinct" or "characteristic" of his work. Choice A refers to something unique or one-of-a-kind, which fits the context of art that was very notable and later adopted by a different school of artists.

Distractor Explanation: Choice B is incorrect because it has a negative connotation that implies that the writer does not like it, whereas the writer refers to the work as "enchanting" or "fascinating," indicating that there is a positive quality to it.

Choice C is incorrect because it relates to feeling unwell or slightly sick, a very different meaning of "peculiar." Choice D is incorrect because it refers to something which is possible to see. Although Caravaggio's use of shadows was possible to see, the author is referring to a different, special quality that Baroque artists later used.

4. **Level:** Hard | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Words in Context

Key Explanation: Choice C is the best answer. "Endow" refers to formally giving money to someone or something, so fits the context of explaining that much of her "legacy" or "money given to people in a will" went to charities.

Distractor Explanation: None of the other choices adequately explain what happened between the legacy and charities. Choice A refers

to forcing someone to comply with laws or rules. **Choice B** refers to surrendering or yielding something, but the charities were not surrendered to anything. **Choice D** is incorrect because it refers to giving power or recognition, not money.

5. **Level:** Hard | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Text Structure and Purpose

Key Explanation: **Choice D** is the best answer. The fact that D'Artagnan notices that people turn around to look stresses that he is very nervous about appearing like an "embarrassed provincial." He realized that they saw through his front and "felt ridiculous." By mentioning the fact that he saw them, it is clear to the reader why his "very good opinion of himself" changed.

Distractor Explanations: **Choice A** is incorrect because there is no conflict in the text. **Choice B** is incorrect because a "temporal change" is a shift in time, but the time sequence remains consistent. **Choice C** is incorrect because the reader has no idea what the scene really is; one knows D'Artagnan is walking by a group of people, but there is no clue how many or where they are.

6. **Level:** Medium | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Text Structure and Purpose

Key Explanation: **Choice B** is the best answer. The passage starts by saying that Levin planned to tell his brother about the marriage, and ends by saying he did not because he was afraid his brother would not view it favorably. The underlined portion gives part of the reason Levin changed his mind: his brother used an "unconsciously patronizing tone" or "spoke as if he looked down on Levin without intending to do

so." Therefore, Levin felt "inferior" or "too low" to discuss an important topic.

Distractor Explanation: **Choice A** is incorrect because the topic of the conversation with the professor is not given; the conversation about agriculture came "afterwards" or "later," and was presumably between Levin and his brother rather than the professor. **Choice C** is incorrect because there is no indication that the conversation about agriculture was an "obstacle" or "barrier" that prevented Levin from getting married; the details could have related to anything agricultural. Instead, the conversation was conducted in a tone which made him feel like he should bring up the topic at a different time. **Choice D** is incorrect because there is no indication that Levin and his brother "frequently" or "often" disagreed about agriculture. In fact, they might not have disagreed in this case, either. The brother just talked in a "patronizing" or "belittling" way.

7. **Level:** Easy | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Cross-Text Connections

Key Explanation: **Choice A** is the best answer because Text 1 describes the "first public tasting of cultured meat" in 2013, and Text 2 explains the "later development" or "thing which occurred afterwards" by saying that the "first sales occurred in December 2020."

Distractor Explanations: **Choice B** is incorrect because Text 1 does not actually say how anyone viewed the product, only that it was first tasted on television. **Choice C** is incorrect because only Text 1 says that it was expensive to develop. Text 2 refers to "skepticism" or "concern" about the product, but does not discuss how it was "created" or "made." **Choice D** is incorrect because Text

2 refers to the public's reaction of "skepticism," but Text 1 never says what people other than the creator thought of the product.

8. **Level:** Medium | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Cross-Text Connections

Key Explanation: **Choice A** is the best answer. Text 1 claims that polar bear populations are not threatened any longer because there was a ban on hunting. However, Text 2 points out that climate change is a severe problem. The author of the Text 2 further distinguishes between changes in different populations, which indicates that while the numbers may be increasing overall, there may be serious losses in genetic diversity if some of the populations die out. Therefore, the author of Text 2 would probably say that Text 1 shows a "limited" or "insufficient" analysis of the complete situation.

Distractor Explanation: **Choice B** is incorrect because, while Text 1 does say that total numbers have "rebounded" or "returned to previous levels," the author of Text 2 points out that some populations have not. In addition, the author of Text 1 does not mention the problem of global warming, which Text 2 points out is eliminating sea ice essential to the survival of the polar bears. Therefore, the author of Text 2 would probably not find the text "inspiring" or "uplifting," but rather "incomplete" or "in error." **Choice C** is incorrect because, while the author of Text 2 might say that Text 1 is "erroneous" or "wrong" in claiming that polar bears are not "in imminent danger of extinction" or "threatened," the reason is not correct. The author of Text 2 might say that the total number is correct, but it is more important to look at numbers in different populations. **Choice D** is incorrect because Text 1 does not imply that efforts to conserve polar bears are "only partially

successful." Rather, Text 1 indicates that efforts were successful and now there is little concern at all. The author of Text 2 would be worried about climate change, not about the positive information regarding hunting given in Text 1.

9. **Level:** Easy | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Central Ideas and Details

Key Explanation: **Choice A** is the best answer. The passage says that thundersnow, a "meteorological event" or "weather phenomenon" is rare, then explains what it is and how it is different from a thunderstorm. Therefore, the main purpose is to introduce a reader to the unusual weather event.

Distractor Explanations: **Choice B** is incorrect because only one sentence in the passage says that thundersnow is most common over "large bodies of water" and gives examples, but also says that the event occurs elsewhere. There is not enough information to know what kinds of other places are suitable, so **Choice B** is not the main purpose of the passage. **Choice C** is incorrect because "why" or "the reasons for" the effect are not discussed. The passage only says that the formation occurs in the same way that thunderstorms do. **Choice D** is incorrect because a "dilemma" is a problem, but there is no discussion of a problem that needs solved.

10. **Level:** Medium | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Central Ideas and Details

Key Explanation: **Choice D** is the best answer because the passage focuses on how Electra increases her savings from \$25 to buy a plot of land to having enough money after seven years

to build a house for her family. “Thrift” refers to the ability to manage money well, so accurately describes Electra.

Distractor Explanations: **Choice A** is incorrect because the text points out that Electra had more money than her husband to begin with, but since she is saving increasing amounts after they got married, he is at least capable of earning money. It is possible he is also saving more on his own, too. **Choice B** is the opposite of the correct answer. The text says that they were romantic, but “practical” refers to making good decisions about everyday life, and the couple save enough for a nice house. **Choice C** is incorrect because there is no indication that Saladin is “taking advantage” or “using” Electra’s money; she is saving the money he earned, so he is contributing to the family finances.

11. **Level:** Hard | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Command of Evidence (Textual)

Key Explanation: **Choice C** is the best answer. The claim is that the author “bewails” or “expresses great regret” about a friend in the poem. **Choice C** says “thou art gone,” meaning “you are no longer here.” The following line, “and never must return” gives more of a clue to what happened: if the friend cannot return, he is probably dead. In other words, **Choice C** shows that there was a “heavy” or “horrible” change in that the friend died and the author is very sad.

Distractor Explanation: **Choice A** is incorrect because it only refers to picking plants, not to any reason for doing so. **Choice B** is incorrect because it only reinforces that they are friends who “nurst upon the self-same hill” or “grew up together,” and

“fed the same flock,” meaning that they worked together. The friendship is established but there is no indication of mourning or sorrow. **Choice D** refers to fame, not to friendship or sorrow, so is incorrect.

12. **Level:** Easy | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Command of Evidence (Textual)

Key Explanation: **Choice B** is the best answer. “Selective disobedience” is defined as a situation where the dog refuses to do something that the owner orders but which might hurt the dog or the owner. **Choice B** gives just such a situation: if the dog leads the owner onto the street, then the dog, the owner, or both could get hit by a truck. The dog makes a decision to wait rather than allow an injury to happen.

Distractor Explanations: **Choice A** is incorrect because there is no indication that an injury would occur if the dog follows the order to watch the cows. If anything, the dog has decided to do something dangerous, as the cows could get lost or cause damage to property. **Choice C** is incorrect because it shows a situation where the dog follows orders, but “selective disobedience” refers to deciding not to follow an order. **Choice D** is incorrect because it is unclear whether the dog is following orders or not. Also, there is no indication that the dog or the person will get harmed if the dog alerts the owner about the ringing phone.

13. **Level:** Medium | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Command of Evidence (Quantitative)

Key Explanation: Choice D is the best answer because the table only includes data for the year 2018. The text warns that “federal, state, and local government budgets may affect the employment of planners in government, because development projects are contingent on available funds.”

In other words, employment may increase or decrease if available “funds” or “money” changes. “Budgets” are “spending plans,” so if the federal government revises or changes its plans due to “fewer tax dollars,” the amount of money for employing planners may be lower. Therefore, there is a “potential” or “chance” that there will be fewer planners in the future than listed in the table.

Distractor Explanation: Choice A is incorrect because neither the table nor the text explains where federal planners work; it is possible that they work in large cities. Therefore, there is not enough evidence to say that the percentage is low because of “need” or “demand” in one area or another. Choice B is incorrect because, while no exact numbers are given, the table does show the percentages of the total number of planners. Therefore, it is possible to determine which sectors hire more planners than others. The actual number is “reflected” or “indicated” as a comparison. Choice C is incorrect because the text does not say that federal government positions are stable. On the contrary, the text says that employment in government positions is variable depending upon budgets, so if the budget changes in any of the levels of government, the percentage of people employed by each sector may also change.

14. **Level:** Medium | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Inferences

Key Explanation: Since the group did not want to say “farewell” and everyone went out to see the narrator off, it is logical to assume that the narrator is not leaving for a brief trip. Since Elizabeth asked for the narrator to write, there will be time to send letters.

Distractor Explanations: Choice A is incorrect because the gender is not given; it is possible that the narrator is a man. Choice B is incorrect because the narrator could have traveled before. Choice C is incorrect because, while the narrator didn’t want to leave the others, it is possible that the narrator was looking forward to the end of the journey and what would happen upon arrival.

15. **Level:** Medium | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Inferences

Key Explanation: Choice D is the best answer because Clark claims, “extinction of species should cause us greater concern than if we believed that biodiversity was maintained in the past by continual replenishment of random extinction by generation of new species.” In other words, he feels that if one species goes extinct, it would show that the biodiversity is not being maintained as it should be; the stabilizing forces would no longer be functioning properly. That could indicate a “collapse” or “failure” of the entire system.

Distractor Explanation: Choice A is incorrect because Clark implies that because of stabilization, ecosystems remain in balance, but if one part of the balance is disrupted, the entire system may collapse. Therefore, a total collapse is more likely than if the system is random. Choice B is incorrect because it refers to the situation in the neutral theory, not the biodiversity stabilization theory. Choice C is incorrect because the

- stabilization theory proposes that the number of species remains about the same. It is implied that the rate of addition and extinction would therefore be about the same.
16. **Level:** Medium | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Form, Structure, and Sense

Key Explanation: Choice D is the best answer because it is a passive past perfect form. That form shows that something else did the act of destroying to the subject; in this case, the arsonist destroyed the pavilion.

Distractor Explanation: Choice A is incorrect because it is an active form, but the pavilion did not do the act of destroying, the arsonist did. Choice B is incorrect because “despite” should not be followed by a clause with a noun and verb. Choice C is incorrect because “despite” should not be followed by an infinitive verb.

17. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Form, Structure, and Sense

Key Explanation: Choice C is the best answer. The underlined portion is a word that modifies “different,” which is an adjective. Choice C is an adverb, so correctly can be used to describe how different the habitats are.

Distractor Explanation: All of the other choices are incorrect because they are parts of speech which cannot be used to modify an adjective. Choice A is another adjective. Choices B and D are nouns that mean, respectively, “the furthest point” and “a person who had radical views.”

18. **Level:** Medium | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Form, Structure, and Sense
- Key Explanation:** Choice D is the best answer. “First performed in England in 1984” is a modifier that describes *Starlight Express*, so it needs to be followed by the noun it modifies. Choice D correctly puts the parts of the sentence in order with *Starlight Express* at the start of the main clause.
- Distractor Explanation:** All of the other choices can be eliminated because “First performed in England in 1984” illogically refers to a person rather than the musical 8 In Choice A, the modifier refers to both Stilgoe and Webber. In Choice B, it refers to Stilgoe, and in Choice C it refers to Webber.
19. **Level:** Medium | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Form, Structure, and Sense
- Key Explanation:** Choice B is the best answer. “People” is plural, and since it ends with an “e,” there needs to be an apostrophe and “s” to show that the opinions belong to the people.
- Distractor Explanation:** Choices A and D are incorrect because “peoples” is not the correct plural apostrophe, as “people” already refers to more than one person. Choices C and D are also incorrect because “opinions” does not possess anything, so does not need an apostrophe of possession.
20. **Level:** Medium | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Boundaries

Key Explanation: Choice D is the best answer. “Invented in...Sousa” is an added piece of information to the main idea that “the sousaphone is a brass instrument....” Such information could be included with commas at each end, in parentheses, or with dashes at each end, but must use the same punctuation at both ends. Since “invented” is preceded by a dash, “Sousa” needs to be followed by one.

Distractor Explanation: Choice A is incorrect because a single dash in a sentence needs to follow a complete clause, but “The sousaphone” is just a noun. Choice B is incorrect because “is” is placed in the aside and away from the main clause, leaving the main clause without a verb. That problem can be more easily seen by writing the sentence without the words between the dashes: “the sousaphone is a brass instrument....” Choice C is incorrect because it uses a comma rather than a dash, so the punctuation at the start and end of the aside are not consistent.

21. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Boundaries

Key Explanation: Choice D is the best answer. “Tenochtitlan, Texcoco, and Tlacopan” are added information to describe the previous noun, “three separate city-states.” They are not essential to understand the meaning of the noun, so need to be divided from the noun they refer to with a comma. There should also be a comma after “Tenochtitlan” and “Texcoco” because they are three items in a list joined by “and.” Such lists need to have a comma after each item.

Distractor Explanation: In Choices A and B, a colon is not incorrect after “city-states” because the previous sentence can stand on its own and

the following information adds detail to that sentence. However, Choice A is incorrect because “and” in a list is not followed by a comma. Choice B is incorrect because single words need to be separated by commas in a list, not by semicolons (semicolons are only used when the items in the list are multiple words with commas). Choice C is incorrect because a comma is necessary to divide “city–states” from the names of the city–states; a noun cannot be followed directly by another noun without punctuation showing how they relate to each other.

22. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Boundaries

Key Explanation: Choice B is the best answer because a comma needs to divide non–essential information from a noun that it describes. In this case, there is only one first line of the poem, so the actual words in the line are helpful but not necessary to understand the noun.

Distractor Explanation: Choice A is incorrect because there should be a comma after “line” because the words from the poem are not necessary to understand the sentence. Choices C and D are incorrect because they create a comma splice between two clauses. Both the parts before and after the comma can stand on their own as sentences.

23. **Level:** Easy | **Domain:** EXPRESSION OF IDEAS
Skill/Knowledge: Transitions

Key Explanation: Choice B is the best answer because it is used to show an exception or change the tone of a passage. The preceding sentence says nuts are related to a longer life, but the following says that it is unclear whether the nuts actually

cause the longer life. **Choice B** therefore effectively shows that there is doubt related to the first claim.

Distractor Explanation: None of the other choices accurately show that the tone changes between sentences. **Choice A** is used to show the result of the first claim, not to show an exception. **Choice C** is used to emphasize the first point with supporting information. **Choice D** is used to highlight a common idea between two concepts that are related.

24. **Level:** Medium | **Domain:** EXPRESSION OF IDEAS

Skill/Knowledge: Transitions

Key Explanation: **Choice D** is the best answer because it is used to show that something happened despite possible ambiguity over previous claims. The previous sentence refers to a range of hypotheses about why King Tut died, which demonstrates ambiguity about the death. The second sentence shows a situation that is common to each of the possible scenarios; the death was fast.

Distractor Explanation: **Choices A** and **B** are incorrect because they are used to introduce the logical conclusion of a previous claim. However, the fact that the death was fast is not necessarily logical given the options expressed; for example, he could have lived a long time after an injury or illness. **Choice C** is incorrect because it is used to give another option or possibility. However, the following sentence discusses something that is true in all of the cases, not something which is separate from one of the theories. For example, being murdered is a form of unexpected death.

25. **Level:** Easy | **Domain:** EXPRESSION OF IDEAS
Skill/Knowledge: Transitions

Key Explanation: **Choice D** is the best answer because it is used to introduce the result of a series of events. In this context, **Choice D** aptly introduces the result of intimidating the natives because Columbus was worried that the natives might harm his crew or stop providing food. If they were intimidated, they would continue giving necessary supplies without rebelling.

Distractor Explanation: **Choice A** is incorrect because it is used to show that something happens despite something else, but in this case, the second is a direct result of the first. **Choice B** is used to paraphrase the preceding idea, so does not fit the context of continuing a story. **Choice C** is used to identify similarities in a comparison rather than show how one event was stopped by another.

26. **Level:** Medium | **Domain:** EXPRESSION OF IDEAS

Skill/Knowledge: Rhetorical Synthesis

Key Explanation: **Choice B** is the best answer because it clearly meets the student's goal of "differentiating" or "showing the contrasts" between Keith's theaters and others. **Choice B** highlights two main differences from the notes. One is that the performances were "polite" because they did not have vulgarity, swear words, or audiences that heckled. The other is that the theaters were elaborate by comparison to "other theaters in that period."

Distractor Explanation: **Choice A** is incorrect because it only says Keith owned more theaters; there is nothing which shows how those theaters are different from other people's. Keith's theaters were elaborate, but **Choice A** does not show

that other theaters were simple. **Choice C** is incorrect because there is no mention of the type of performances that other people's theaters ran; in addition, the fact that Albee took over does not offer a contrast for what happened in other situations. **Choice D** is incorrect because it only says what Keith preferred and did; there is no contrast to show how his decisions led to differences from other theaters.

27. **Level:** Hard | **Domain:** EXPRESSION OF IDEAS
Skill/Knowledge: Rhetorical Synthesis

Key Explanation: **Choice B** is the best answer because it explains what the blood moon is, including when it occurs and how it forms. **Choice B** therefore best accomplishes the goal of educating the audience about a blood moon.

Distractor Explanation: **Choice A** can be eliminated because the audience already knows about a lunar eclipse, so does not need more information about how one occurs. **Choice A** mentions a blood moon, but does not help the reader understand what it is or why the moon turns red. **Choice C** is incorrect because according to points 3 and 4, the entire total lunar eclipse is not called a blood moon; a blood moon is only a stage or phase of the process. **Choice D** is incorrect because it erroneously indicates that red light from the Sun shines through the Earth, but instead, the final point shows that the Moon is colored by light that shines around the Earth.

1. **Level:** Medium | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Words in Context

Key Explanation: Choice D is the best answer because the blank portion shows what “Donovan” did to “childcare.” Choice D refers to a great change or improvement, so fits the context of saying that disposable diapers completely changed the way children could be raised.

Distractor Explanations: None of the other choices accurately show what “Donovan” did to “childcare.” Choice A refers to putting something back together, but childcare has not been damaged or fallen apart from a better state. Choice B refers to changing the structure of an institution or rearranging objects in a place, and Choice C refers to changing the name or identification of something.

2. **Level:** Medium | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Words in Context

Key Explanation: Choice D is the best answer because “application” refers to the starting point of the salt stress. Choice D refers to the carrying out of a course of action, so aptly shows that the number of days from the action of creating stress until the appearance of the first flowers was recorded.

Distractor Explanations: None of the other choices fits the context of indicating when the salt process began. Choice A refers to “meaning” or “importance. Choice B refers to putting in hard effort over a long period. Choice C refers to asking for something.

3. **Level:** Hard | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Words in Context

Key Explanation: Choice B is the best answer. “Adroitness” means “skill” or “talent,” so shows that the composition “exemplifies” or “stands as a model of” the artist’s ability to manipulate or control color.

Distractor Explanations: None of the other choices adequately explain what the manipulation of subtle colors refers to. Choice A refers to the state of being easily harmed by something, but Whistler was not harmed by the colors. Choice C refers to an agreement to do something, such as meet a person. Choice D refers to something that distracts from a serious activity.

4. **Level:** Medium | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Text Structure and Purpose

Key Explanation: Choice A is the best answer because “casting doubt” refers to showing that something may not be true; “veracity” is “truth.” The underlined word also has the same meaning: it shows that something is said but that there is doubt about whether the claim is true or not. The claim is that Knight created the Lassie character, but the following sentence shows there is doubt: Gaskell wrote about such a character almost a century earlier. In other words, the underlined portion indicates that the author feels that maybe Gaskell was the creator and not Knight, as others said.

Distractor Explanations: Choice B is incorrect because the underlined portion does not “question” or “cast doubt” on the idea that the stories have a lot in common; instead, the underlined portion emphasizes that they are similar by hinting that maybe Knight copied

the character. **Choice C** is incorrect because the underlined portion does not modify or cast doubt upon “fictional,” it modifies “first introduced.” **Choice D** is incorrect because there is no indication that Gaskell’s story was popular or widely read at all.

5. **Level:** Medium | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Text Structure and Purpose

Key Explanation: **Choice B** is the best answer because the example is that Lee is a sensitive director who shows “nuances” or “subtleties” about Black characters. The following portion is a “contrast” or “difference” because it shows how other people stereotyped black actors to specific roles or even painted White people to look like Black ones.

Distractor Explanations: **Choice A** is incorrect because there is no mention of a stereotype in the underlined portion; the rest of the text points out that Blacks were reduced to stereotypical roles. **Choice C** is incorrect because there is no evidence that Lee “pioneered” or “started” a change; the text only says that his work is different from that of directors in the past. **Choice D** is incorrect because the problem of Black stereotypes is not mentioned in the underlined portion, so the underlined portion does not show that it took time to “resolve” or “fix” it.

6. **Level:** Easy | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Text Structure and Purpose

Key Explanation: **Choice B** is the best answer. “Every cloud has a silver lining” is an idiom which means that everything which at first looks bad actually has something good about it. In this case, the material that Subramanian made was not magnetic and could not be used for the purpose

he wanted, but he saw the possibility that he could “market” or “sell” it and earn money because of its other properties.

Distractor Explanation: **Choice A** is incorrect because the idiom is not used literally, but figuratively. A “pigment” is a coloring agent like a powder, not a cloud. **Choice C** is incorrect because there is no indication that the pigment could make other colors, only that it was useful for making blue because it had properties most other blues did not. **Choice D** is incorrect because “market the new pigment” shows that Subramanian is taking advantage of or selling the color, not the quality of magnetism. There is no sign that adding something else will make it magnetic after all.

7. **Level:** Medium | **Domain:** CRAFT AND STRUCTURE

Skill/Knowledge: Cross-Text Connections

Key Explanation: **Choice B** is the best answer because Stearns says that slavery is only possible because laws governing slavery exist. The fact that the slave is owned by the state is one piece of legislation, so it supports the claim that slavery continues due to legislation rather than just the wishes of the slave and owner.

Distractor Explanation: **Choice A** is incorrect because Stearns says that the law is the only thing to be considered. Therefore, if the law says that emancipated slaves are state property, it doesn’t matter if the former slave has any paperwork showing otherwise. **Choice C** is incorrect because Stearns says that the U.S. Constitution supports laws of the states, but does not support slavery *per se*. **Choice D** is incorrect because Stearns says that the slaves are subjected to the laws of their masters. In the scenario given, the master would

be the state, so running away would not protect the slave from the laws of that state.

8. **Level:** Easy | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Central Ideas and Details

Key Explanation: **Choice D** is the best answer because the passage states that “They are extremely adaptable to a wide variety of habitats” and “are now flourishing in different areas.” In other words, coywolves are able to “adapt” or “change” enough to live in many different “habitats” or “natural surroundings.” Hence, they are in a range of “environmental conditions.”

Distractor Explanations: **Choice A** is incorrect because the text offers no comparison of which place has the most coywolves; it only says that they live in many habitats in Canada and other places. **Choice B** is incorrect because there is no indication of how closely related coywolves are to any species; it could be that they have one wolf parent and one coyote parent. **Choice C** is incorrect because the passage only says that coywolves “first appeared” in Canada in the 20th century. It is unclear whether anyone bred them or whether they hybridized naturally in the wild.

9. **Level:** Easy | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Central Ideas and Details

Key Explanation: **Choice B** is the best answer because the final sentence says that Nabongo “has written a book about her adventures.” Since “her adventures” refers to traveling to all the countries in the world, she is an “author” or “writer” of such a book.

Distractor Explanations: **Choice A** is incorrect

because the text does not say which country Nabongo was born in; the fact that she is Ugandan–American could mean she was born in the U.S. to Ugandan parents. **Choice C** is incorrect because there is no indication of which order Nabongo visited the locations. **Choice D** is incorrect because the text does not give Nabongo’s opinion just of the Seychelles, only of her travels in general.

10. **Level:** Easy | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Central Ideas and Details

Key Explanation: **Choice B** is the best answer. The first sentence explains the idea of The Fun Theory and the second sentence explains how the company proposed to test the theory. The final sentence gives the results: a large percentage of people changed their behaviors due to the fun factor which was introduced.

Distractor Explanations: **Choice A** is incorrect because the passage says that the experiment was designed to test a theory used in an advertising campaign, but does not explain the results of the campaign. It is possible that no additional cars were sold as a result of it. **Choice C** is incorrect because the passage does not say that more people took the stairs than the escalator, only that the use of stairs increased. It is possible that the use of the escalator was still higher than the stairs. **Choice D** is incorrect because there is no discussion that other places should adopt the same type of piano stairs; the passage only says that the stairs were effective in changing behavior in this experiment.

11. **Level:** Hard | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Command of Evidence (Textual)

Key Explanation: Choice C is the best answer. The claim is that the park is “considered a world treasure for more than its beauty” or “valuable for things other than the way it looks.” Choice C gives an important reason that people might want to conserve it: the climate is “unique” or “one of a kind” that is high in biodiversity, as illustrated by the huge number of plants in the area.

Distractor Explanation: Choice A is incorrect because it only says that the site is preserved; it does not give a reason why. Choice B is incorrect because there is no reason that a country boundary is a world heritage site of great value; this choice could be acceptable if there were reasons showing why the basaltic line is special, but not as it stands. Choice D is incorrect because it gives a reason that the park might have lost value. If the park has also been damaged, then the conservation value is decreased.

12. **Level:** Medium | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Command of Evidence (Quantitative)

Key Explanation: Choice A is the best answer because the statement describes the “difference in the iron uptake increase.” Therefore, the correct answer is derived by subtracting the smaller column from the larger. The smaller column is the control mouse, which has a value of about 2.7. The larger represents the mouse with no HEPHL1 genes, which has a value of about 3.8. The difference is $3.8 - 2.7 = 1.1$. Even if the values are changed by a few decimal points, Choice A is the closest approximate.

Distractor Explanation: None of the other choices shows the “difference in the iron uptake increase.” Choice A would represent a difference

larger than 2 of the lines on the y-axis, but there is only one line (the one for 3 nmoles) between the two bars. Choice C refers to the total increase for the control mouse, not the difference between the control mouse and the mouse with no HEPHL1. Choice D refers to the total increase of the mouse with no HEPHL1.

13. **Level:** Medium | **Domain:** INFORMATION AND IDEAS

Skill/Knowledge: Command of Evidence (Quantitative)

Key Explanation: Choice B is the best answer because the graph shows the percentage of increase from the previous year, 2015. The data for Sierra Leone, in the far left-hand column, is just over 120%, but the data for Togo, the second column from the right, says that there was only a growth of just over 20%. The passage points out that quality and accessibility affect whether tourists are attracted to a site or not. Therefore, it is reasonable to assume that the reason for the great increase is that there was a change in infrastructure that made it easier for tourists to visit.

Distractor Explanation: Choice A is incorrect because the graph compares a percentage increase in tourism, not a percentage of the total tourists. It is unknown how many people went to any given place. Choice C is also incorrect because the graph says that Burundi had an increase in visitors of about 40%, which means that it had 40% more than the previous year, not that it had 40% more than other places. Choice D is also incorrect because, while there was a greater increase in the number of visitors in Eritrea than in Madagascar, it is unknown what the original number was. It is possible that Madagascar started with a much greater number of tourists in previous years.

14. **Level:** Medium | **Domain:** INFORMATION AND IDEAS
Skill/Knowledge: Inferences

Key Explanation: **Choice D** is the best answer because the text refers to trouble that was “not alone for himself, but for every tide-water dog.” Therefore, Buck probably considers himself to be a “tide-water dog.” It is clear he is strong, because the text calls these dogs “strong of muscle and with warm, long hair” and ends by saying that the men wanted dogs that were “heavy dogs, with strong muscles by which to toil, and furry coats to protect them from the frost.”

Distractor Explanations: **Choice A** is not supported by the passage because there is reference to steamships as being currently in the news, but Buck does not know the news. Therefore, he has yet to know about going to the north on a ship. **Choice B** is incorrect because finding “yellow metal”—presumably gold in Alaska—is something that is in the news that Buck does not know about. **Choice C** is incorrect because the text appears to be written from a dog’s point of view, as Buck considers himself part of “every tide-water dog.”

15. **Level:** Medium | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Form, Structure, and Sense

Key Explanation: **Choice B** is the best answer because it is an adjective, so can correctly be used after the “to be” verb “are” to describe the noun “citizens.”

Distractor Explanations: **Choice A** is a plural noun that refers to circumstances or rules, which does not describe people well. **Choice C** is an adverb, so cannot be used to describe the noun “citizens.” **Choice D** is incorrect because it refers to a substance that makes something softer for example, a fabric softener.

16. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Form, Structure, and Sense

Key Explanation: **Choice A** is the best answer. The underlined portion is one item in a list joined by “and,” and such lists need to have the same grammatical structure in each item. The first two items are infinitive verbs that follow “to” and show the purpose of the dam: “control” and “increase.” **Choice A** maintains the same structure with the infinitive “generate.”

Distractor Explanations: All of the other choices are incorrect because they are not parallel with the other items in the list joined by “and.” **Choice B** includes the noun “it.” **Choice C** changes the order of the words into a clause, and **Choice D** repeats “to,” which is not repeated with “increase water storage.”

17. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS
Skill/Knowledge: Form, Structure, and Sense

Key Explanation: **Choice B** is the best answer. The underlined portion is a verb that needs to agree with the subject, which is the plural word “members.”

Distractor Explanations: **Choices A and D** are incorrect because they are singular verbs. Though the preceding word, “the society” is singular, the subject is actually plural, “members of the society.” **Choice C** is incorrect because the underlined portion is part of the main clause; “though” subordinates the first half of the sentence. Therefore, an active verb is necessary to make a complete clause, but “dedicating” is a gerund.

18. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS

Skill/Knowledge: Form, Structure, and Sense

Key Explanation: Choice A is the best answer. The underlined portion is part of a list of adjectives joined by “and.” Choice A is parallel with the other adjectives, “courageous” and “rebellious.”

Distractor Explanation: All of the other choices can be eliminated because they do not create a parallel list with the adjectives preceding “and.” Choice B is a complete clause. Choices C and D contain verbs.

19. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS

Skill/Knowledge: Boundaries

Key Explanation: Choice A is the best answer because parenthetical information should be considered part of the word it refers to in the sentence and the punctuation should follow the regular punctuation of that part of speech. In this case, the facts in the parentheses describe the subject “shichimi”, so should be considered part of the subject. No commas are needed between the subject and the following verb “is.”

Distractor Explanation: All of the other choices are incorrect because they include unnecessary commas. In B and D, the commas separate the noun from the parenthetical information that describe it. In C and D, the commas divide the subject and its verb.

20. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS

Skill/Knowledge: Boundaries

Key Explanation: Choice A is the best answer. “Like stegosaurs and tyrannosaurs” is used to explain what is meant by “familiar species,” so does not have to be separated from the sentence with any punctuation.

Distractor Explanation: Choice B is incorrect because “were” is the verb that goes with “familiar species.” If there is only one comma, then “like... of time” becomes a modifier of “species” and there is no verb in the main clause. Choice C is incorrect because “like stegosaurs and tyrannosaurs” could be separated from “species” and the main sentence with commas at both ends, but in that case, there should be no comma after “stegosaurs.” Two nouns joined by “and” should not be separated with punctuation. Choice D is incorrect because a colon needs to follow a complete sentence, but the preceding portion has no verb to go with “species.”

21. **Level:** Easy | **Domain:** STANDARD ENGLISH CONVENTIONS

Skill/Knowledge: Boundaries

Key Explanation: Choice C is the best answer. The portions before and after the underlined section are both able to stand on their own as sentences, so can be joined with a period or semicolon.

Distractor Explanation: Choice A is incorrect because it creates a run-on. Choice B is incorrect because it creates a comma splice. Choice D is incorrect because “and” turns the following portion into a dependent clause that cannot stand on its own as a sentence.

22. **Level:** Medium | **Domain:** STANDARD ENGLISH CONVENTIONS

Skill/Knowledge: Boundaries

Key Explanation: Choice A is the best answer. “What is little known is that as the plans evolved over the sixteen years of construction” is a modifier separate from the main idea, “a ramp was eliminated.” Additional information needs to be divided from the main clause with a comma, as indicated by the comma after “construction.” A comma should also follow “smaller” because it is part of a series of adjectives modifying the verb “ramp.”

Distractor Explanation: None of the other choices correctly divides the sentence. Choices B, C, and D do not have the comma after “construction” that is necessary to identify where the modifier ends and the main clause starts. Choice B includes an unnecessary comma after “ramp,” separating that noun from its verb, “was eliminated.” The comma after “steeper” in Choice C is possible if “much steeper” is used to add description to the word “smaller,” but there is still a comma lacking after “construction.” Choice D is missing all punctuation.

23. **Level:** Medium | **Domain:** EXPRESSION OF IDEAS

Skill/Knowledge: Transitions

Key Explanation: Choice C is the best answer because it is used to give a detail related to a previous claim. In the context, the general idea of rigorous training is expanded upon with an example of one form of such rigorous training: the dog needs to learn to alert the owner in a special circumstance.

Distractor Explanation: None of the other choices establish the relationship that the second sentence gives an example that illustrates the first sentence. Choice A is used to show that

something happened despite the previous claim. Choice B is used to show the result of the previous claim. Choice D is used to point out a similarity between two different examples.

24. **Level:** Easy | **Domain:** EXPRESSION OF IDEAS
Skill/Knowledge: Transitions

Key Explanation: Choice B is the best answer because it is used to show that the following thing comes chronologically after the previous discussion. It fits the context of showing that Gandhi used civil disobedience in the 1920s and King used it in the 1960s.

Distractor Explanation: Choice A is incorrect because it is used to introduce the results of an argument, but the fact that King used civil disobedience does not necessarily follow from the points that Thoreau wrote about it and Gandhi practiced it. Choice C is incorrect because it is used to give an example. While the following portion is an example of civil disobedience, it is not an example of the previous sentence, Gandhi’s use of the technique. Therefore, the transition is misplaced at this point. Choice D shows that something happens despite something else. However, King’s use of civil disobedience did not necessarily happen because Gandhi used it; King might have drawn some inspiration from the previous event.

25. **Level:** Medium | **Domain:** EXPRESSION OF IDEAS
Skill/Knowledge: Transitions

Key Explanation: Choice A is the best answer because it is used to offer a paraphrase or different wording of a previous idea. In this case, it offers a simple explanation “the shell creates a rash” to

clarify the earlier claim that the shells “trigger contact dermatitis” because of oils that are “caustic” or “cause a burning sensation.”

Distractor Explanation: **Choice B** is incorrect because it is used to show something similar between a comparison of two items that have common elements but that are not the same. It is not used to explain the same idea in different words. **Choices C** and **D** are incorrect because they are used to introduce the opposite possibility, but the context gives different words for the same thing.

26. **Level:** Easy | **Domain:** EXPRESSION OF IDEAS

Skill/Knowledge: Rhetorical Synthesis

Key Explanation: **Choice D** is the best answer because it gives a concise definition of “heat islands” for an audience that does not know what they are. **Choice D** then achieves the student’s goal of offering solutions by summarizing the fourth and fifth bullet points.

Distractor Explanation: **Choice A** is incorrect because it mistakenly offers air conditioners as a solution for heat islands, but the notes only say that air conditioners contribute to the problem of global warming. **Choice B** is incorrect because it only explains what heat islands are; it does not offer any solutions as per the student’s goal. **Choice C** is incorrect because an audience that does not know what a heat island is will not know the meaning after reading the statement. It does not include the crucial definition that they are hotter urban areas. Though **Choice C** does offer one way to solve the problem, the reader does not know why it helps.

27. **Level:** Hard | **Domain:** EXPRESSION OF IDEAS

Skill/Knowledge: Rhetorical Synthesis

Key Explanation: **Choice A** is the best answer because it is the most convincing argument for a farming community: it shows how the deer can be protected, yet it also shows the people that the student is trying to convince that they will not be harmed in the process. The farmers can “do their jobs” rather than lose land or work because of the new plan.

Distractor Explanation: All of the other choices are incorrect because they show how the plan benefits deer, but they do not address the potential concerns of a farming community about such problems as losing part of their property to the corridor or how to continue farming if there are more deer habitats in the area. Therefore, they are not as convincing an argument for the student to use in trying to get the people to agree to a wildlife corridor.

1. **Level:** Easy | **Domain:** ADVANCED MATH
Skill/Knowledge: Nonlinear functions | **Testing point:** Writing exponential function equation from data
- Key Explanation:** Choice A is correct. The initial value of the land is \$47,890, which increases by 2% every year. This suggests that the function is exponential growth. The exponential growth formula is $f(x) = a(1 + r)^x$ where a is the initial value, r is the growth rate and x is the time. In this situation, $a = 47,890$, $r = 0.02$, and $x = t$. Substituting these values to the formula yields $f(x) = 47,890(1.02)^t$. Making A the correct option.
- Distractor Explanations:** Choices B and D are incorrect. These options are linear functions, however, the model equation in the question is exponential. Choice C is incorrect. This is a decreasing exponential function since the factor 0.98 is less than 1.
2. **Level:** Medium | **Domain:** ALGEBRA
Skill/Knowledge: Linear equations in one variable
Testing point: Matching coefficients
- Key Explanation:** Choice C is correct. Grouping the left side of the equation yields $(ax + bx) + (a - b) = 5x - 2$. Factoring out x from the first group yields $x(a + b) + (a - b) = 5x - 2$. Matching coefficients and constants on both sides of the equation yields $(a + b) = 5$ and $(a - b) = -2$. Factoring the given expression $(a^2 - b^2)$ yields $a^2 - b^2 = (a + b)(a - b)$. Substituting the values of $(a + b)$ and $(a - b)$ yields $a^2 - b^2 = (5)(-2) = -10$.
- Distractor Explanations:** Choice A is incorrect. This is the value of $(a + b) + (a - b)$. Choice B is incorrect. This is the value of $a + b$. Choice D is incorrect. This is the value of $a - b$.
3. **Level:** Medium | **Domain:** ADVANCED MATH
Skill/Knowledge: Nonlinear functions
Testing point: Solving for a quadratic equation using the quadratic formula
- Key Explanation:** To solve for this quadratic equation, use the quadratic formula
- $$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a},$$
- where $a = 3$, $b = -6$ and $c = -21$. Substituting the given values yields
- $$x = \frac{-(-6) \pm \sqrt{(-6)^2 - 4(3)(-21)}}{2(3)} \text{ or } x = \frac{6 \pm \sqrt{288}}{6}.$$
- Simplifying the equation yields $x = 1 \pm \frac{12\sqrt{2}}{6}$ or $x = 1 \pm 2\sqrt{2}$. Matching the two expressions yields $1 \pm 2\sqrt{2} = 1 + 2\sqrt{k}$. Therefore, $k = 2$.
4. **Level:** Easy | **Domain:** GEOMETRY AND TRIGONOMETRY
Skill/Knowledge: Area and volume | **Testing point:** Finding the area of a rectangle
- Key Explanation:** Choice D is correct. The length of the rectangle is $(x - 6)$ and the width is x . The area of a rectangle is given by length \times width which is $x(x - 6) = 27$. Using distributive property yields $x^2 - 6x = 27$. Subtracting 27 from both sides of the equation yields $x^2 - 6x - 27 = 0$. Solve the quadratic equation either by using the quadratic formula or by using the factor method. Factoring $x^2 - 6x - 27 = 0$ yields $(x + 3)(x - 9) = 0$. Equating $(x + 3)$ to zero yields $x + 3 = 0$ or $x = -3$. Equating $(x - 9)$ to zero yields $x - 9 = 0$ or $x = 9$. Since the width cannot be negative, the width would therefore be 9. Solving for the length of the rectangle yields $9 - 6 = 3$.

Distractor Explanations: Choice A is incorrect. This is the value of x or the width of the rectangle. Choice B is incorrect and may result from a conceptual or calculation error. Choice C is incorrect. This is the difference between the length and the width of the rectangle.

5. **Level:** Easy | **Domain:** ALGEBRA

Skill/Knowledge: Linear equations in one variable
Testing point: Solving for x in a linear equation

Key Explanation: Choice A is correct. Solve for x first in the given equation $7x + 14 = 7$. Subtracting 14 from both sides of the equation yields $7x = 7 - 14$ or $7x = -7$. Dividing both sides of the equation by 7 yields $x = -1$. The equivalent equation will also have the same value of x . Solve the value of x in choice A by subtracting 6 from both sides of the equation which yields $3x = 3 - 6$ or $3x = -3$. Dividing both sides of the equation by 3 yields $x = -1$. Therefore, $3x + 6 = 3$ is equal to $7x + 14 = 7$.

Distractor Explanations: Choices B and C are incorrect. Solving the value of x from both equations yields $x = 3$. Choice D is incorrect. Solving the value of x from $7x = 7$ yields $x = 1$.

6. **Level :** Hard | **Domain:** ALGEBRA

Skill/Knowledge : Linear inequalities in one or two variables | **Testing point :** Solving absolute value inequalities

Key Explanation: To solve for the values of x , make two inequalities of absolute value for the positive and negative values.

$$+|x + 3| < +7$$

$$-|x + 3| < +7$$

$$x + 3 < 7$$

$$-x - 3 < 7$$

$$x + 3 - 3 < 7 - 3$$

$$-x - 3 + 3 < 7 + 3$$

$$x < 4$$

$$-x < 10, \text{ divide both sides by } -1$$

$$x > -10$$

Hence, $-10 < x < 4$. The integers between -10 and 4 are $-9, -8, -7, -6, -5, -4, -3, -2, -1, 0, 1, 2$ and 3 .

Therefore, there are 13 integer solutions in the given inequality.

7. **Level:** Easy | **Domain:** ADVANCED MATH

Skill/Knowledge: Nonlinear functions | **Testing point:** Finding a value of an exponential function

Key Explanation: Choice A is correct.

Substituting $\frac{1}{3}$ to the given equation yields

$$p\left(\frac{1}{3}\right) = \left\{\frac{1}{8}\right\}^{\frac{-1}{3}} = 8^{\frac{1}{3}} = \sqrt[3]{8} = 2$$

$$\text{Therefore, } p\left(\frac{1}{3}\right) = 2.$$

Distractor Explanations: Choice B is incorrect. This option may be a result of finding $p(3)$. Choice C is incorrect and may result from solving the value of $p\left(-\frac{1}{3}\right)$. Choice D is incorrect. This option may be a result of finding $p(-3)$.

8. **Level:** Medium | **Domain:** ADVANCED MATH

Skill/Knowledge: Nonlinear functions | **Testing point:** Using the factor theorem

Key Explanation: Choice C is correct. Factor theorem states that if $f(a) = 0$, then $x - a$ is a factor of $f(x)$. In Choice C, $a = 2$. Substituting 2 to the given equation yields $f(2) = 6(2)^2 - 17(2) + 10$. Using distributive property yields $f(2) = 24 - 34 + 10$ or $f(2) = 0$. This means that $x - 2$ is a factor of $f(x)$.

Distractor Explanations: Choice A is incorrect.

Substituting $-\frac{5}{6}$ to the given equation yields

$$f\left(-\frac{5}{6}\right) = 6\left(-\frac{5}{6}\right)^2 - 17\left(-\frac{5}{6}\right) + 10 = \frac{25}{6} + \frac{85}{3}$$

Choice B is incorrect. Substituting -5 to the given equation yields 245 . **Choice D** is incorrect. Substituting 5 to the given equation yields 75 .

9. **Level:** Easy | **Domain:** PROBLEM-SOLVING AND DATA ANALYTICS

Skill/Knowledge: One-variable data: distributions and measures of center and spread | **Testing point:** Interpreting box and whisker plots

Key Explanation: **Choice D** is correct. The median in a box and whisker plot is represented by the line in the box (interquartile range). From the above, Date Set A has a median of data set B has a greater median compared to data set A.

Distractor Explanations: **Choice A** and **Choice B** are incorrect. The mean and number of data or frequency cannot be found from a box and whisker plot representation. **Choice C** is incorrect. This statement is false.

10. **Level:** Easy | **Domain:** ADVANCED MATH

Skill/Knowledge: Nonlinear equations in one variable and systems of equations in two variables

Testing point: Finding the vertex of a parabola through a transformation

Key Explanation: The vertex of $f(x)$ is $(-2, 5)$. Translating the parabola 3 units to the left and 1 unit up would result in $(-5, 6)$, which is the vertex of $g(x)$.

Therefore, the value of h is -5 .

11. **Level:** Easy | **Domain:** PROBLEM-SOLVING AND DATA ANALYSIS

Skill/Knowledge: Two-variable data: models and scatterplots | **Testing point:** Using the line of best fit

Key Explanation: **Choice C** is correct. The points above the line of best fit have a higher value than the values predicted by the line of best fit. There are 6 points above the line.

Distractor Explanations: **Choice A** is incorrect and may result from counting the total points in the scatter plot. **Choice B** is incorrect and may result from counting the points below the line. **Choice D** is incorrect. This option may result from conceptual errors.

12. **Level:** Easy | **Domain:** ADVANCED MATH

Skill/Knowledge: Equivalent expressions |

Testing point: Using the difference of two squared with binomial expressions

Key Explanation: **Choice D** is correct. Rewriting the expression $(x + \sqrt{2})^2(x - \sqrt{2})^2$ yields

$\left[(x + \sqrt{2})(x - \sqrt{2})\right]^2$. Using $(a + b)(a - b) = a^2 - b^2$ yields

$\left[(x + \sqrt{2})(x - \sqrt{2})\right]^2 = (x^2 - (\sqrt{2})^2)^2$. Simplifying the radicals yields $(x^2 - 2)^2$. Expanding the expression yields $x^4 - 4x^2 + 4$.

Distractor Explanations: **Choices A, B, and C** are incorrect and may result from a conceptual or calculation error

13. **Level:** Easy | **Domain:** ALGEBRA

Skill/Knowledge: Linear functions | **Testing point:**

Finding the equation of a line from a graph

Key Explanation: **Choice A** is correct. The graph decreases from left to right. This means that the line has a negative slope. Looking at the choices, only **Choice A** has a negative slope of -4.85 .

Therefore, $y = 231 - 4.85x$ is the equation of the graph.

Distractor Explanations: Choices B, C, and D are incorrect. These equations have positive values of slopes.

14. **Level:** Medium | **Domain:** PROBLEM SOLVING AND DATA ANALYSIS

Skill/Knowledge: Percentages | **Testing point:** Using proportions and percentages

Key Explanation:

	Girls	Boys
On the track team	6	$\frac{3}{5} \times 20 = 12$
Not on the track team	$\frac{3}{4} \times 24 = 18$	8
	24	20

From the table, the number of students on the track team would be $6 + 12 = 18$ out of the 44 students. In percentage form this would be

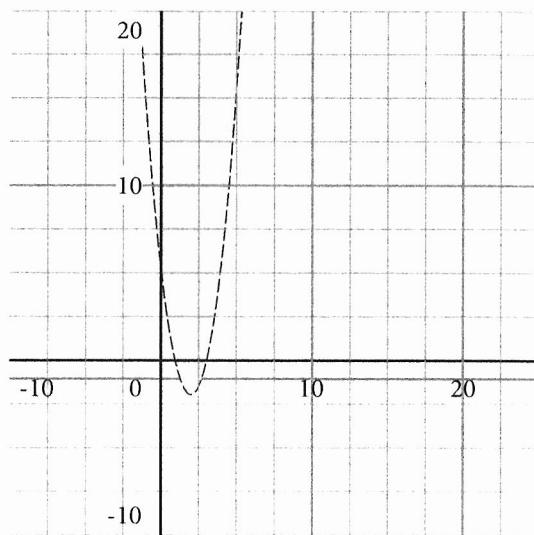
$$\frac{18}{44} \times 100 = 40.909\% \text{ or } 41\% \text{ rounded off to the nearest whole number.}$$

15. **Level:** Easy | **Domain:** ADVANCED MATH

Skill/Knowledge: Nonlinear equations in one variable and systems of equations in two variables

Testing point: Solving for quadratic and linear inequalities

Key Explanation: Choice D is correct. The inequality $y > 2(x - 2)^2 - 2$ has a graph of parabola. This means that it is in the form $y > a(x - h)^2 + k$ where (h, k) is the vertex. Hence, the vertex is at $(2, -2)$. Since the value a is positive, the parabola opens upwards. This means that the lowest point of the graph is the vertex. Hence, the value of y must be greater than -2 .



However, the second inequality states that $y \geq -1$, making -1 the least value of y .

Distractor Explanations: Choices A and C are incorrect. These are solutions to the system. However, they are not the least value of y . Choice B is incorrect. The option is not part of the solutions of the system.

16. **Level:** Hard | **Domain:** ADVANCED MATH

Skill/Knowledge: Equivalent expressions |

Testing point: Factoring a quadratic

Key Explanation: Choice A is correct. Adding 98 to both sides of the equation yields $2x^2 + 28x + 98 = 0$. Factoring out 2 yields $2(x^2 + 14x + 49) = 0$. Using the model $(a + b)^2 = a^2 + 2ab + b^2$, the expression $(x^2 + 14x + 49)$ can be written as $(x + 7)^2$. Hence, the equation becomes $2(x + 7)^2 = 0$. Therefore, only equation 1 is equal to the given equation.

Distractor Explanations: Choices B and C are incorrect. This is because equation two is not equivalent to the given equation. Choice D is incorrect. This is because only equation 2 is not equivalent and not both of them.

17. Level : Easy | Domain: ALGEBRA

Skill/Knowledge: Systems of two linear equations in two variables | **Testing point:** Solving simultaneous equations

Key Explanation: The system of equations above can be solved either by substitution or elimination. Using elimination method, the 1st equation is multiplied by 2 which yields $2(3y - 2x = 6)$ or $6y - 4x = 12$.

Subtract the two equations yields $y = 4$.

Substituting the value of y to the first equation yields $3(4) - 2x = 6$ or $12 - 2x = 6$.

Adding $2x$ and subtracting 6 from both sides of the equation yields $12 - 6 = 2x$ or $6 = 2x$.

Dividing both sides of the equation by 2 yields

$3 = x$ or $x = 3$.

Therefore, $2x + y$ is $2(3) + 4 = 6 + 4 = 10$.

18. Level : Medium | Domain: PROBLEM SOLVING AND DATA ANALYSIS

Skill/Knowledge: Inference from sample statistics and margin of error | **Testing point:** Making inferences from sample to population

Key Explanation: Choice B is correct. From the survey, $\frac{53}{97}$ of the students surveyed are in favor of changing the school uniform. This means that $97 - 53 = 44$ or 44 of 97 students are not in favor of changing the school uniform. To approximate the number of students in school that are not in favor of the change would be $\frac{44}{97} \times 2,300 = 1,043$.

Distractor Explanations: Choice A is incorrect. This would be the approximate number of students in school that are in favor of the change in uniform. Choice C is incorrect. This is the total number of students in the school. Choice D is incorrect. This option may result from miscalculation or conceptual error.

19. Level : Easy | Domain: ALGEBRA

Skill/Knowledge: Systems of two linear equations in two variables | **Testing point:** Working with systems of linear equations with no solution

Key Explanation: Choice B is correct. A system of equations with no solutions means that the lines are parallel. They have the same slope but different y intercepts. Using distributive property yields

$$3x + 5 - \frac{8}{3x} - 8 = px + 4$$

Simplifying the left side of the equation yields $\frac{1}{3}$

$x - 3 = px + 4$. Matching the coefficients of x yields $p = \frac{1}{3}$.

Distractor Explanations: Choices A, C and D are incorrect. These options would result in having a system of equations with one solution.

20. Level : Medium | Domain: ALGEBRA

Skill/Knowledge: Linear equations in two variables | **Testing point:** Solving a system of equations with Infinite solutions

Key Explanation: A system of equations with infinite solutions are equations of the same line and have both the same slope and y -intercept. Using distributive property yields $5x - 10 + x + 3 = kx - 2k + 2x + 1$.

Combining and grouping like terms yields $6x - 7 = (kx + 2x) + (-2k + 1)$.

Matching the constants yields $-7 = -2k + 1$.

Adding 7 and $2k$ to both sides of the equation yields $2k = 8$.

Dividing both sides of the equation by 2 yields $k = 4$.

21. **Level :** Easy | **Domain:** GEOMETRY AND TRIGONOMETRY
Skill/Knowledge: Lines, angles, and triangles |
Testing point: Working with inscribed shapes and special triangles

Key Explanation: Choice D is correct. The diameter of the circle is equal to the diagonal length of the square. The diameter is $12 \times 2 = 24 \text{ cm}$, which means that the diagonal of the square is also 24. And since the diagonal length is equal to $s\sqrt{2}$ where s is the side length of the square, then $s\sqrt{2} = 24$. Solving for s by

dividing both sides of the equation by $\sqrt{2}$ yields

$$s = \frac{24}{\sqrt{2}} \text{ Rationalizing the denominator yields}$$

$$s = \frac{24}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{24\sqrt{2}}{2} = 12\sqrt{2} \text{ . Therefore, } s = 12\sqrt{2}$$

Distractor Explanations: Choice A is incorrect. This is the value of the diameter of the circle. Choice B is incorrect. This is the value of the radius of the circle. Choice C is incorrect. This option would be a result of misconception and conceptual error.

and D are incorrect. These options may be due to conceptual and miscalculation errors.

22. **Level :** Hard | **Domain:** ALGEBRA
Skill/Knowledge: Linear equations in two variables | **Testing point:** Determining the equation of a line from data

Key Explanation: Choice B is correct. The value of is constant for all values of x given; thus the equation of the line would be $y = 4$. Substituting the value of y to the given equation yields $4 = 2k$. Dividing both sides of the equation by 2 yields $2 = k$ or $k = 2$.

Distractor Explanations: Choice A is incorrect. This is the value of the constant $2k$. Choices C

1. **Level:** Medium | **Domain:** ADVANCED MATH
Skill/Knowledge: Nonlinear equations in one variable and systems of equations in two variables
Testing point: Solving quadratic equations

Key Explanation: Choice C is correct. Quadratic equations can be solved either by using the quadratic formula or by solving using the factor method.

Using the factor method, first find the product of the highest degree term and the constant which will be $3x^2 \times 6 = 18x^2$.

The factors of $18x^2$ that will add up to be equal to the middle term $-19x$ are $-x$ and $-18x$.

Splitting the middle term yields $3x^2 - x - 18x + 6 = 0$.

Grouping the equation yields $(3x^2 - x) - (18x - 6) = 0$.

Factoring the equation yields $x(3x - 1) - 6(3x - 1) = 0$.

Factoring out $(3x - 1)$ yields $(3x - 1)(x - 6) = 0$.

Equating $(x - 6)$ to zero yields $x - 6 = 0$ or $x = 6$.

Equating $(3x - 1)$ to zero yields $3x - 1 = 0$ or $x = \frac{1}{3}$.

Since $\frac{1}{3}$ is in the options, then Choice C is the correct answer.

Distractor Explanations: Choice A is incorrect. This is the negative value of the solution = 6. Choice B is incorrect. This is the value of the products of the solutions/roots which is (c/a) . Choice D is incorrect. This is the negative value of the solution $x = 1/3$.

2. **Level:** Medium | **Domain:** GEOMETRY AND TRIGONOMETRY
Skill/Knowledge: Circles | **Testing point:** Completing the square and using the equation of a circle

Key Explanation: Choice B is correct. Diameter is twice the radius. To find the radius of the circle, rewrite the given equation in standard form $(x - h)^2 + (y - k)^2 = r^2$ where (h, k) is the center of the circle and r is its radius. Completing the squares

$$\text{yields } (x - 4)^2 - \left(\frac{-8}{2}\right)^2 + (y + 5)^2 - \left(\frac{10}{2}\right)^2 = 8 \text{ or}$$

$$(x - 4)^2 - 16 + (y + 5)^2 - 25 = 8. \text{ Adding 25 and 16 to both sides of the equation yields } (x - 4)^2 + (y + 5)^2 = 8 + 25 + 16 \text{ or } (x - 4)^2 + (y + 5)^2 = 49.$$

Since $r^2 = 49$, then $r = 7$.

The diameter would then be $2(7) = 14$.

Distractor Explanations: Choice A is incorrect. This is the value of the radius of the circle given above. Choice C is incorrect. This assumes that 8 is the radius of the circle and that the diameter would be $2(8) = 16$. Choice D is incorrect. This can be a result of not getting the square root of the constant in the equation.

3. **Level:** Easy | **Domain:** ALGEBRA

Skill/Knowledge: Linear functions | **Testing point:** Solving for the absolute value of a linear function $f(x)$, given x

Key Explanation: To find $f(2)$, substitute 2 in place of x in the equation which yields $f(2) = -2(2) - 6$.

Simplifying the equation yields $f(2) = -4 - 6$ or $f(2) = -10$.

$|f(2)|$ is the absolute value of $f(2)$.

Therefore, $|-10| = 10$.

4. **Level:** Hard | **Domain:** GEOMETRY AND TRIGONOMETRY

Skill/Knowledge: Right triangles and trigonometry | **Testing point:** Using trigonometric identities

Key Explanation: Choice B is correct. Converting the tangent function to sine and cosine functions yields $\tan(90 - x)^\circ = \frac{\sin(90 - x)^\circ}{\cos(90 - x)^\circ}$. Since the sine of an angle is equal to the cosine of its complementary angle and vice versa, $\sin x = \cos(90 - x)$ and $\cos x = \sin(90 - x)$. Substituting the equivalent identities yields $\tan(90 - x) = \frac{\cos x}{\sin x}$. Therefore, the correct answer is **Choice B**.

Distractor Explanations: Choices A and C are incorrect and may result from solving the equivalent identity of $\tan x$ and $\frac{1}{\tan x}$ respectively.

Choice D is incorrect and may result from solving the equivalent identity of $\tan(-x)$.

5. **Level:** Easy | **Domain:** ALGEBRA

Skill/Knowledge: Linear functions | **Testing point:** Meaning in context in linear equation

Key Explanation: Choice C is correct. Alina earns an interest monthly based on her deposit. This makes the model equation for her savings account linear. 7.684 in this context, is the amount of interest she earns monthly which can be obtained by multiplying the interest rate with the principal amount. This yields $(6.8\% \times 113) = 7.684$. Thus making option C correct.

Distractor Explanations: Choice A is incorrect. The amount of interest earned after t months would be represented by $7.684t$. **Choice B** is incorrect. The total amount in the account after t months would be represented by the function $A(t)$. **Choice D** is incorrect. The interest earned per year is \$92.208.

6. **Level:** Medium | **Domain:** ALGEBRA

Skill/Knowledge: Systems of two linear equations in two variables | **Testing point:** System of linear equations

Key Explanation: Choice B is correct. A system of equations with no solution are systems that have parallel lines and therefore have the same slope and different y -intercepts. To find the slope and y -intercept of the given equation, the equation has to be in the slope-intercept form $y = mx + c$. Subtracting $-6x$ from the equation yields $-3y = -6x + 2$. Dividing -3 from both sides of the equation yields $y = 2x - \frac{2}{3}$. The slope is 2 and the y -intercept is $-\frac{2}{3}$.

Rewriting **Choice C** in slope intercept form yields $y = 2x + 4$. Since it has the same slope and different y -intercept with the given line, both lines are parallel and will have no solutions.

Distractor Explanations: Choice A is incorrect.

The line has a different slope of $\frac{2}{3}$, which makes the system have one solution. **Choices C and D** are incorrect. Both lines have a slope of 2 and y -intercept is $-\frac{2}{3}$ which is the same as the given line. Hence, both lines are collinear which makes the system have infinite solutions.

7. **Level:** Easy | **Domain:** ADVANCED MATH

Skill/Knowledge: Nonlinear functions | **Testing point:** Solving for $p(x)$ given x in a quadratic function

Key Explanation: To find $p(2)$, substitute 2 in place of x . This yields $p(2) = 2(2)^2 - 6(2) + 5$. Simplifying the equation yields $p(2) = 8 - 12 + 5$ or $p(2) = 1$.

8. **Level:** Easy | **Domain:** ALGEBRA

Skill/Knowledge: Linear equations in two variables | **Testing point:** Finding the equation of the line given two points

Key Explanation: Choice B is correct. To find the equation of the line, first find the slope of the line. Substituting (6, 5) and (0, 0) to the slope formula

$$m = \frac{y_2 - y_1}{x_2 - x_1} \text{ yields } m = \frac{0 - 5}{0 - 6} = \frac{5}{6}.$$

Substituting the slope to the slope-intercept form $y = mx + b$ yields

$$y = \frac{5}{6}x + b.$$

Since the line passes through the origin, the y -intercept is zero which means $b = 0$.

$$\text{Hence, the equation of the line is } y = \frac{5}{6}x \text{ or}$$

$$6y = 5x, \text{ which makes B the correct option.}$$

Distractor Explanations: Choice A is incorrect and may result from finding the equation of the line that passes through the origin and point (5, 6). Choices C and D are incorrect. These lines do not pass through the origin and point (6, 5).

9. **Level:** Easy | **Domain:** ADVANCED MATH

Skill/Knowledge: Nonlinear functions | **Testing point:** Determining a quadratic equation from its graph

Key Explanation: Choice D is correct. The graph opens downwards and this makes a (the coefficient of x^2) negative. Hence, the possible answer is either choice C or D. To determine which is correct between choice C and choice D, check the value of h for each equation using the formula $\frac{-b}{2a}$

where b is the coefficient of x . Since the vertex of the graph is in the first quadrant, then h must be positive. Solving h in Choice C yields $\frac{-(6)}{2(-2)}$ or

$-\frac{3}{2}$. Hence, Choice C is incorrect. Solving h in

choice D yields $\frac{-(6)}{2(-2)}$ or $\frac{3}{2}$. Therefore, Choice D is the correct answer.

Distractor Explanations: Choices A and B are incorrect. The graph of these equations opens upwards since the coefficient of x^2 is positive. Choice C is incorrect because the value of h is negative.

10. **Level:** Easy | **Domain:** GEOMETRY AND TRIGONOMETRY

Skill/Knowledge: Lines, angles and triangles |

Testing point: Using the sum of the interior angles of a polygon formula

Key Explanation: A quadrilateral is a four sided figure. The sum of the interior angles can be found by $180(n - 2)$ where n is the number of sides.

$$\text{Substituting 4 yields } 180(4 - 2) = 360^\circ.$$

Adding the given angles yields

$$x + x + 40 + x + 50 + x - 10 = 360.$$

Combining like terms yields $4x + 80 = 360$.

Subtracting 80 from both sides of the equation yields $4x + 80 - 80 = 360 - 80$ or $4x = 280$.

Dividing both sides of the equation by 4 yields $x = 70^\circ$.

11. **Level:** Medium | **Domain:** GEOMETRY AND TRIGONOMETRY

Skill/Knowledge: Right triangles and trigonometry | **Testing point:** Using SOHCAHTOA in similar right triangles

Key Explanation: Choice A is correct. Triangle ABD and Triangle ACD are similar right triangles. This makes angle CAD and angle DBA equal. Therefore, $\sin CAD = \sin DBA$.

Since $\sin DBA = \frac{O}{H} = \frac{AD}{BD}$, then $\sin CAD = \frac{AD}{BD}$. BD is the hypotenuse for triangle ABD which can be calculated using Pythagorean Theorem $a^2 + b^2 = c^2$, where a and b are the legs and c is the hypotenuse of the right triangle. Applying

this to triangle ABD yields $AB^2 + AD^2 = BD^2$. Substituting the values of AB and AD yields $10^2 + 24^2 = BD^2$. Simplifying the left side of the equation yields $676 = BD^2$. Getting the square root of both sides of the equation yields $\sqrt{676} = BD$ or $26 = BD$. Substituting the value of AD and BD to $\sin CAD = \frac{AD}{BD}$ yields $\sin CAD = \frac{24}{26}$ or $\sin CAD = \frac{12}{13}$.

Distractor Explanations: Choice B is incorrect. This option is the value of $\tan CAD$. Choice C is incorrect. This option is the value of $\cos CAD$. Choice D is incorrect. This option is the value of $\tan CDA$.

12. **Level:** Easy | **Domain:** ADVANCED MATH

Skill/Knowledge: Equivalent expressions | **Testing point:** Using the distributive property

Key Explanation: Choice B is correct. Using distributive property yields $7wp(2w) + 7wp(5)$. Simplifying the expression yields $14w^2p + 35wp$.

Distractor Explanations: Choices A, C, and D are incorrect and may result from a conceptual or calculation error.

13. **Level :** Easy | **Domain:** GEOMETRY AND TRIGONOMETRY

Skill/Knowledge: Area and volume | **Testing point:** Using volumes of similar shapes

Key Explanation: The ratio of volume of sphere A and sphere B is $27 : 1$. The ratio of the radius would be $\sqrt[3]{27} : \sqrt[3]{1} = 3 : 1$. Sphere B has a radius of 4 cm . Applying the ratio of $3 : 1$, this would make the radius of sphere A $3 \times 4 = 12$.

14. **Level:** Hard | **Domain:** PROBLEM-SOLVING AND DATA ANALYSIS

Skill/Knowledge: Probability and conditional probability | **Testing point:** Calculating probabilities

Key Explanation: Choice C is correct.

	Rain	No rain
Monday	43%	57%
Thursday	86%	14%

Probability is equal to one or 100% (if in percentage form), therefore the chance that it won't rain on Monday will be $100\% - 43\% = 57\%$. Since it is twice as likely to rain on Thursday than on Monday, the chance that it will rain on Thursday will be $2(43\%) = 86\%$. Hence, the chance that it would not rain on Thursday is $100\% - 86\% = 14\%$ or 0.14.

Distractor Explanations: Choice A is incorrect. This is the value of the probability that it would rain on Monday. Choice B is incorrect as this is the chance that it would not rain on Monday. Choice D is incorrect as this is the chance that it would rain on Thursday.

15. **Level:** Hard | **Domain:** ADVANCED MATH

Skill/Knowledge: Nonlinear equations in one variable and systems of equations in two variables | **Testing point:** Solving nonlinear inequalities

Key Explanation: Choice B is correct. To solve the following system, the bases have to be the same. Since 16 and 4 are multiples of 2, 16^x becomes 2^{4x} and 4^x becomes 2^{2x} . This yields

$$\frac{2^{4x}}{2^{2x}} > 2.$$

Since the terms on the left side of the inequality are divided, their exponents will be subtracted which will yield $2^{4x-2x} > 2^6$ or $2^{2x} > 2^6$. Since the bases are the same, then $2x > 6$. Dividing both sides of the inequality by 2 yields $x > 3$. 4 is the next integer greater than 3.

Distractor Explanations: Choices A, C, and D are incorrect as they are all less than 3 or equal to 3.

16. **Level :** Hard | **Domain:** ADVANCED MATH

Skill/Knowledge: Equivalent expressions |

Testing point: Matching coefficients and solving systems of equations

Key Explanation: Using distributive property yields $3ax - 3b + 4bx - 4a = x - 6$.

Grouping like terms yields $(3a + 4b)x + (-3b - 4a) = x - 6$. Matching the coefficients of x and the constants to make two equations yields $3a + 4b = 1$ and $-4a - 3b = -6$. Using the elimination method to find the value of a and b , multiply the 1st equation by 4 and the 2nd equation by 3. This yields $4(3a + 4b = 1)$ or $12a + 16b = 4$ and $3(-4a - 3b = -6)$ or $-12a - 9b = -18$. Adding the two equations yields $7b = -14$. Dividing both sides of the equation by 7 yields $b = -2$. Substituting the value of b to the 1st equation yields $3a + 4(-2) = 1$ or $3a - 8 = 1$. Adding 8 to both sides of the equation yields $3a = 9$. Dividing both sides of the equation by 3 yields $a = 3$.

17. **Level:** Easy | **Domain:** GEOMETRY AND TRIGONOMETRY

Skill/Knowledge: Area and volume | **Testing point:** Finding the volume of a cone

Key Explanation: Choice B is correct. The volume of a cone is given by the formula $\left(\frac{1}{3}\pi r^2 h\right)$

where r is the radius and h is the height. Since the height is 6 more than the radius, $h = 12 + 6 = 18$. Substituting the values to the formula yields

$$\frac{1}{3}\pi(12)^2(18) = 864\pi.$$

Distractor Explanations: Choice A is incorrect because this gives the volume of a cylinder with the given parameters. Choices C and D are incorrect. These options may result from miscalculation or by using the wrong formula.

18. **Level:** Easy | **Domain:** ALGEBRA

Skill/Knowledge: Linear equations in two variables | **Testing point:** Finding the slope of a line from an equation

Key Explanation: Choice A is correct. To find the slope of the line, rewrite the equation in slope intercept form $y = mx + c$, where m is the slope and c is the y -intercept. Adding $3y$ and subtracting 6 from both sides of the equation yields $4x - 6 = 3y$. Dividing both sides of the equation by 3 yields

$$\frac{4}{3}x - 2 = y \text{ or } y = \frac{4}{3}x - 2. \text{ Therefore, the slope of}$$

the line is $\frac{4}{3}$.

Distractor Explanations: Choice B is incorrect because this is the coefficient of x when the equation of the line is in general form. Choices C and D are incorrect and may result from a conceptual or calculation error.

19. **Level :** Medium | **Domain:** GEOMETRY AND TRIGONOMETRY

Skill/Knowledge: Circles | **Testing point:** Calculating angle measure given arc length

Key Explanation: The arc length is a fraction of the circumference. The arc would therefore be

$$\frac{3\pi}{20\pi} = \frac{3}{20}.$$

Multiplying it to the full angle of a circle yields

$$\frac{3}{20} \times 360^\circ = 54^\circ.$$

20. **Level:** Easy | **Domain:** PROBLEM SOLVING AND DATA ANALYSIS

Skill/Knowledge: Ratios, rates, proportional relationships, and units | **Testing point:** Using inverse proportions

Key Explanation: Choice B is correct. The price per student would be $\frac{p}{30}$. If 28 students paid before the day of the trip, then this can be represented by $\frac{p}{30} \times 28 = \frac{28p}{30}$ or $\frac{14}{15}p$.

Distractor Explanations: Choices A and C are incorrect and may result from assuming that p is the price per student. Choice D is incorrect and may result from solving the price per student.

21. **Level:** Hard | **Domain:** GEOMETRY AND TRIGONOMETRY

Skill/Knowledge: Circles | **Testing point:** Finding the equation of a circle

Key Explanation: Choice C is correct.

The standard form of the equation of a circle is $(x - h)^2 + (y - k)^2 = r^2$, where (h, k) is the center of the circle and r is the radius. Substituting the given data yields $(x + 3)^2 + (y - 5)^2 = 6^2$.

Expanding the equation yields

$$x^2 + 6x + 9 + y^2 - 10y + 25 = 36.$$

Subtracting 36 from both sides of the equation yields $x^2 + 6x + y^2 - 10y + 34 - 36 = 0$.

Matching the constant in $x^2 + 6x + y^2 - 10y - 2 = ax^2 + bx + cy^2 + dy + e$ yields $e = -2$.

Distractor Explanations: Choices A and D are incorrect. These options may result from conceptual errors. Choice B is incorrect. This is the value of $r^2 = 6^2 = 36$, however it is not the value of e .

22. **Level:** Medium | **Domain:** ALGEBRA

Skill/Knowledge: Linear inequalities in one or two variables | **Testing point:** Solving for a linear inequality

Key Explanation: Choice D is correct. Using distributive property yields $-3x - 6 < 2x - 16$. Adding 6 and subtracting $2x$ from both sides of the inequality yields $-3x - 6 - 2x + 6 < 2x - 16 + 6 - 2x - 5x < -10$. Dividing both sides of the inequality by -5 yields $x > 2$. Since 3 is greater than 2, it is the correct answer.

Distractor Explanations: Choices A, B and C are incorrect. These values are less than or equal to 2.