



TEST PREP AND
ADMISSIONS

ACT^{®*}

Sample Test

Answers & Explanations

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The History of Fish Keeping

1. **B** A pronoun must have a clear and logical antecedent. In **A**, “they” could refer to either “fish” or “fish keeping enthusiasts.” **C** and **D** make the same ambiguity error, using “these” and “them.”
2. **J** The most concise version is **J**. Both **F** and **G** use the wordy phrase “of the fact that.” **H** introduces a new wordiness problem by turning “be aware” into “come into the awareness that.” **J**’s simple “do not know” delivers the same meaning more directly and plainly.
3. **D** The adjective “artificial” is intended to describe the ponds that the Sumerians made for keeping fish. It doesn’t make sense to say that fish keeping has “ancient artificial origins,” **B**; the origins are real. **A** is incorrect because the fish themselves were not artificial—they were real. The same is true for the Sumerians, an ancient people (**C**).
4. **J** The words “keeping,” “possessing,” and “having” all mean essentially the same thing. Using two of them together (**F**, **G**, and **H**) adds redundancy, not more meaning, to the sentence.
5. **C** The infinitive verb is “to breed,” so the correct choice is **C**. The correct past tense and past participle form of “breed” is “bred,” not “breeded,” so **A** and **B** must both be incorrect. **D** presents the correct past tense “bred,” but the infinitive uses the present form of the verb, not the past.
6. **G** The paragraph moves from a discussion of ancient Chinese fish keeping to ancient Roman fish keeping; a transition is needed to connect these ideas. Only **G** shows the similarity between the fish keeping of both cultures. In **F**, the transition “Furthermore” suggests incorrectly that the ancient Romans are an additional example of what has come before, details about the success the Chinese had with breeding fish. The transition “In fact” in **H** also incorrectly suggests that the sentence provides more information about the Chinese breeding fish. In **J**, the transition “nevertheless” indicates a contrast that does not exist.
7. **B** This question asks you to determine the function of a sentence in the paragraph. This sentence provides a detail about how the Romans kept fish to sell at market for people to eat. This supports the author’s earlier statement that “the ancient Romans kept fish for food.” Although the sentence does show that the Romans were successful in fish keeping, **A**, the primary purpose of the paragraph is to show examples of ancient fish keeping, not to explain why one ancient culture made progress in selling fish. The sentence links to ideas that came before it, not to ideas that follow it, so it is not an effective transition to the next paragraph, **C**. The paragraph focuses on examples of ancient fish keeping, not a comparison of how two cultures kept fish, so you can eliminate **D**.

8. **F** Ask yourself how the underlined verb is being used. It's the main verb for the subject "relationship." **F** is the only choice that works. In **G**, the sentence won't make sense if we insert "which." **H** is wrong because a main verb can never have an *-ing* form unless there is some form of the verb "to be" in front of it. You can say "I am running," but not "I running." **J** introduces an error in subject-verb agreement. The singular noun "relationship" requires the verb "was," not "were."
9. **D** The full sentence from which this question is taken actually is two short but complete sentences: "The first display aquariums opened...in London" and "aquariums soon appeared in Naples, Berlin, and Paris." When two short sentences are joined into one, and linked by a comma, the comma must be followed by a coordinating conjunction—a word like "and," "but," or "or." In this case, the word showing the correct relationship between the independent clauses is "and." **A** creates a run-on. **B** turns the second clause into a dependent clause that incorrectly modifies "London." The coordinating conjunction "so" in **C** incorrectly suggests a cause-and-effect relationship between the two clauses.
10. **J** **F** and **G** use "it" and "its" without clear antecedents. **H** uses "one's" in a similarly ambiguous way.
11. **B** Two commas are needed to separate the additional information "built in 1956" from the main sentence "Marineland of Florida...was the first oceanarium." Only **B** accomplishes this. **A** is missing the second comma, and **C** is missing the first comma. **D** includes "built" as part of the main sentence, creating the incorrect "Marineland of Florida built...was the first oceanarium."
12. **F** The question asks you to select the sentence that emphasizes the popularity of aquariums. **F** is a perfect fit, explaining that there are aquariums across the country that have millions of visitors each year. **G** identifies a popular activity at aquariums—watching feeding time—but it does not tell us anything about the general popularity of aquariums themselves. **H** focuses on the educational opportunities aquariums offer, not their popularity. Similarly, **J** tells us what is needed to make an aquarium succeed without telling us anything about the popularity of aquariums.
13. **B** The correct word for the attitude toward fish keeping is **B**, "interest." The word "event" in **A** indicates an activity of short duration, which is inappropriate in context. In **C**, "awareness" does not indicate how much people like fish keeping. It does not make sense to call fish keeping an "exercise," as **D** does.
14. **H** The noun that the verb needs to agree with is "number," not "pets," so the plural form "are" in **F** and **G** is incorrect. **H** uses the correct verb and the comparative "greater." **J** creates the idiomatically incorrect phrase "is the greater than."
15. **A** The essay's focus is explaining the history of fish keeping; it offers very little information about how to set up and maintain an aquarium. **A** provides a logical explanation for why the essay does not meet the stated goal. Although it is true that the essay discusses both public and private aquariums, **B**, this does not explain why the essay failed to explain the details of aquarium keeping. The essay does not meet the writer's stated goal, so both **C** and **D** are incorrect.

Social Mobility

16. **F** The sentence is correct as it stands. There is clearly a pause between “mobility” and “horizontal,” so we need some form of punctuation between the two words. **G** incorrect treats “mobility” as part of a list with “horizontal and vertical.” **H** uses a semicolon, but semicolons connect two independent clauses that could be sentences by themselves. The phrase “horizontal and vertical” could not be a sentence. **F** and **J** correctly use a colon, which introduces a list or definition. However, **J** unnecessarily inserts the word “being.” Don’t add what you don’t need.
17. **B** The words “pay” and “salary” have approximately the same meaning. It is redundant to use both (**A** and **C**). **D** incorrectly turns the phrase “in terms of salary and prestige” into a description of “pay.”
18. **J** The term “vertical mobility” is an essential part of the sentence, so it should not be separated from the sentence with commas, as in **F**. The single comma in **G** makes the error of separating the verb “called” from its object “vertical mobility.” Similarly, the comma in **H** separates the helping verb “is” from the main verb “called.”
19. **C** The mention of the Russian Revolution illustrates the point made in the preceding sentence, that social mobility “may change the entire social system.” “For instance” (**C**) correctly indicates this. **A** and **B** are wrong because this sentence does not offer a conclusion based on the preceding sentence. **D** creates a contrast that doesn’t work in the context of the paragraph.
20. **F** This sentence is most clear and concise as it is written. The phrase “degrees of change” indicates difference and variety on its own, so “differing” in **G** and **H** is redundant, as is “various” in **J**. **H** also adds the unnecessary phrase “the fact that,” while **J** turns the verb “involving” into the less direct “the involvement of.”
21. **D** The correct verb tense here is the simple present tense “include.” The conditional constructions “would be” and “could have” in **A** and **B** do not make sense; the writer is using actual examples, not hypothetical ones. **C** uses the future tense, but the author is talking about current examples, not ones that will happen in the future.
22. **H** Sentence 5 says that gradual changes can accomplish social mobility, so it makes most sense before sentence 4, which gives an example of a gradual change. **H** is correct.
23. **C** The original version of the underlined portion has an ambiguous pronoun—it is unclear to whom “They” refers. To clear up this problem, the clearer subject “Some people” in **C** is needed. **B** and **D** also present pronouns without clear antecedents.
24. **J** The preceding sentence stated that some people view large-scale mobility negatively. This sentence offers a contrasting opinion. The words “accordingly” (**F**) and “similarly” (**G**) are incorrect because they imply agreement. In **H**, “for example” suggests that what follows is a negative example of large-scale mobility. The phrase “on the other hand” (**J**) correctly introduces a differing thought.

25. **C** Only one choice here creates a correct sentence. **C** makes “those” the subject of the clause, with “who are attempting to rise” a description of the subject and “validate and therefore reinforce” a correctly structured compound verb. **A** makes “they” the subject of the clause, leaving “are attempting to rise validate and therefore reinforce” a compound verb that is missing the necessary commas to separate the three actions. **B** also presents this problem, and compounds it by omitting the helping verb “are.” **D** incorrectly uses the possessive “their.” For this pronoun to be correct, the verb “attempting” would need to be changed to the plural noun “attempts.”
26. **H** The main theme of the passage is social mobility. The American educational system (**F**), salary ranges (**G**), and a rock video (**J**) have nothing to do with this. The correct choice is **H**, since it talks about some benefits of social mobility.
27. **B** This sentence is actually two complete sentences, or independent clauses, that are incorrectly joined. You can join related independent clauses with a comma and a coordinating conjunction, or you can join them with a semicolon. The correct coordinating conjunction here must indicate a contrast, as the second part of the sentence explains that these people see the destruction of the class system as a positive, not a negative. **B**’s “yet” shows this contrast. **C**’s “so” incorrectly suggests a cause-and-effect relationship. **A** creates a run-on by using a comma without the necessary coordinating conjunction. **D** makes the run-on problem worse by removing the comma.
28. **F** The relative pronoun “which” is needed to show that the phrase “material wealth is given so much importance” describes “a social system.” In **G**, the pronoun “that” cannot replace “which.” **H** leaves out the necessary preposition “in.” **J** changes the dependent clause in the second half of the sentence to an independent clause, creating a run-on sentence.
29. **B** Read the sentence without the intervening clause “of shoppers hitting the malls, credit cards in hand” to check for subject-verb agreement. The subject of this sentence is “crowd,” not “shoppers.” As a collective noun, “crowd” needs the singular form “shows,” not the plural “show” in **A**. **C** creates a sentence fragment by using the *-ing* form “showing” without the necessary helping verb “is.” **D** also creates a fragment by using the infinitive “to show” instead of the present tense “show.”
30. **J** The final paragraph of an essay should conclude the topic, not lead into additional information. The phrasing of the new sentence—“just one of the many indicators of social mobility”—leads readers to expect more information about those other indicators of social mobility. The sentence should not be added for the reason given in **J**. **H** is not entirely true; the first paragraph does mention ways in which Americans spend money.

Berthe Morisot

31. **D** No punctuation is needed between “artist” and “that.” The word “that” connects the clause “The critic George Moore once said of this artist” to the following quotation. **A** incorrectly uses a comma to separate “artist” and “that”; it also creates a sentence structure problem by including the unnecessary verb “is.” A colon is not used along

with the word “that” to introduce a quotation, which makes **B** wrong. **C** incorrectly uses a semicolon; the clause that begins with “that” is dependent, not independent.

32. **J** The most direct and concise choice is **J**, and it is correct. The phrase “is also one that” in **F** and **G** is unnecessarily wordy. **G** also presents the error of using a comma to separate a subject, “Moore’s statement,” from its verb, “is.” **H** creates a sentence fragment by making the rest of the sentence a dependent clause beginning with “which.”
33. **B** A pronoun must refer to a clear and logical antecedent. In **A** and **D**, we can guess that “it” refers to politics, but this isn’t made clear in the sentence. **C** uses the word “politics,” but the construction is clumsy. Correct **B** is simplest and clearest.
34. **F** The issue here is verb tense. The surrounding sentences use the simple past tense—“showed,” “took,” “began”—so the simple past tense “had” in **F** is correct. The progressive past tense “was having” in **G** doesn’t make sense in context. The sentence does not deal with a hypothetical situation, so the conditional tenses in **H** and **J** are incorrect.
35. **A** The passage is talking about the painters Morisot studied with, not about their nationalities. Manet’s heritage, no matter how it is phrased, is not relevant. **A** is correct.
36. **J** The sentence is about events that occurred in the past and are now over, so the correct verb tense here is the simple past “lacked” in **J**. **F** incorrectly uses the present tense. **G** is missing the helping verb “was” necessary for a complete verb. **H** incorrectly uses the future perfect tense “will have lacked,” indicating that Morisot’s lack of freedom is a future, not a past, event.
37. **C** **C** correctly uses the subjective case pronoun “who” to begin the dependent clause describing Morisot’s male colleagues. **A** results in a run-on sentence; the pronoun “they” creates an independent clause connected to another independent clause by only a comma. The colleagues are the subject doing the action of the clause, not the object receiving the action, so the objective case pronoun “whom” in **B** is incorrect. With the conjunction “and,” **D** incorrectly suggests that it was Morisot, not her male colleagues, who “faced no threat of disapproval.”
38. **J** The previous sentence talks about Morisot’s set-backs. This sentence talks about the way she overcame them. We are looking for a connecting word that implies *contrast*: Morisot did well *in spite of* her hardships. “However” (**J**) provides the contrast we are looking for. **F** suggests a conclusion, and **G** and **H** both indicate a parallel relationship.
39. **A** For this question, you needed to find the one choice that creates an INCORRECT sentence. **A** creates the sentence fragment “Portraying women performing domestic and social activities”; this fragment doesn’t have a clear subject or verb. **B** correctly uses a colon to introduce important information. **C** creates two complete sentences. **D** creates a compound verb by correctly using the past tense “portrayed” to match the structure “Morisot concentrated.”

40. **H** We're looking for a statement that will present Morisot in a more positive light. **H** suggests that while her subject matter may APPEAR limited, it could ACTUALLY be considered quite meaningful, given the social context in which it was produced. Choices **F**, **G**, and **J**, in contrast, are all somewhat negative in tone.
41. **C** This question deals with introducing a list of examples. **C** correctly uses a comma and "such as" to introduce the list of examples of "some device." In **A**, the colon is incorrectly placed before the words signaling a list. **B** treats "such as" as parenthetical information, separating it from the rest of the sentence with two commas. **D** incorrectly places a comma at the beginning of the list.
42. **G** The sentence presents a contrast—even though there were obstacles, Morisot became an important artist. Only **G** provides the necessary contrast. **F** incorrectly begins with a coordinating conjunction, and reflects an inappropriate cause-and-effect relationship between the clauses. Both **H** and **J** indicate a parallel relationship, not a contrasting one.
43. **D** Choices **A**, **B**, and **C** are redundant. By definition, successors are the people who come after someone else.
44. **F** Ask yourself what the main point of the passage is. The passage is about Morisot's experience as a female artist, and only **F** is relevant to that topic. **H** refers to George Moore, who is mentioned in the passage in relation to Morisot. To devote a section of the passage to him, however, would change its focus. Likewise, a discussion of Impressionism (**G** and **J**) would change the focus of the passage.
45. **B** Try to find an appropriate beginning first. Paragraph 1 is especially easy to eliminate, as it refers to "this artist" without ever telling us her name. Paragraph 3 is less obvious, but it talks about Morisot's subject matter and style without telling us who she is. The passage can't start with paragraph 4, because none of the answer choices do. Paragraph 2 provides general background information on Morisot, so it should be first. That leaves **B** and **C**. Paragraph 3 introduces Morisot's subject matter, which paragraph 4 talks about in greater detail. So it makes sense to put paragraph 3 immediately before 4.

Success of the Slasher

46. **G** Make it all match. Ask, "what is the subject?" Even though "exception" occurs right before the verb, the subject is "movies." "Movies" is plural, so we need a plural verb. "Were being replaced" (**H**) is plural, but it illogically changes the tense. We're talking about a change in movies right now, not in the distant past.
47. **C** "The slasher movie" is the "new breed of horror film." We need something to connect a thing and its definition: either punctuation or a connecting phrase. **D** is wordy and inserts an unnecessary comma, and **B** uses the semicolon incorrectly. The colon in **C** properly introduces the definition.

48. **G** Reading a bit further in the essay will help you select the correct answer here. The entire essay *examines* the genre of the slasher movie. **F** does not work because the word “inquire” would need the preposition “about” in this context. **H** changes the meaning of the sentence—the writer is thinking about slasher films, not making a *decision* about them. It doesn’t make much sense to “visualize” the “values at work in our nation,” **J**.
49. **C** The issue here is word order. Only **C** presents a version of the underlined portion that makes sense. In **C**, the descriptive phrase “the first commercially successful low-budget thriller” is placed next to the noun it modifies—*Halloween*—and is correctly separated from the main part of the sentence. In **A**, the two adverbs “commercially successfully” do not make sense. **B** unnecessarily separates the helping verb “was” from the main verb “released.” **D** misplaces the title of the movie. It should follow its description “the first low-budget thriller.”
50. **G** Plug the choices in. **F**, **H**, and **J** don’t make sense. That’s because the verb is “have glutted,” and the whole verb has to go in one place.
51. **C** The clearest and most concise option is **C**. Phrases such as “situation of” in **A** and “the fact of the matter” in **B** create unnecessarily wordy sentences. **D** uses both “popularity” and “success” when only one or the other would do.
52. **J** In this sentence, “gory” is an adjective modifying the noun “productions.” An adverb is needed to modify the adjective, so “increasingly” in **J** is correct. Remember that most adverbs are formed by adding *-ly* to an adjective. **F** and **G** fail to address the adverb issue, while **H** introduces a redundancy error by adding the adverb “more,” which means essentially the same thing as “increasing.”
53. **A** A comma is needed to separate the introductory phrase from the main part of the sentence, **A**. The phrase does not introduce information that needs to be emphasized, so the colon in **B** is incorrect. Similarly, the sentence does not need the emphasis created by the dash in **C**. A semicolon separates two independent clauses, but the introductory phrase is not an independent clause (**D**).
54. **G** This question asks you to choose a word or phrase that best communicates a large number. The word “countless” in **G** emphasizes the number of imitators by suggesting that there are so many it is impossible to count them. **F** and **H** offer much less specific descriptions with “many” and “several.” **J** goes a different direction, using “variety of” to indicate different types of imitators. Only **G** accomplishes what the question stem calls for.
55. **D** “They’re” may sound like “there are,” but it means “they are,” which doesn’t make sense here. Also, “they’re” is the same as “they are,” in **B**. There can’t be two correct answers, so whenever two answers mean the same thing they must both be wrong. The plural form “are” is needed to match the plural subject “imitators,” so **C** is incorrect.
56. **G** Try to decide on appropriateness first. “That’s a big wad of cash!” sounds out of place because it is very informal, while the passage is relatively formal. So we can decide that the statement should be deleted, and look for an answer that gives us this reason. Correct **G** refers to the passage’s tone.

57. **D** The clause that begins “Although the popularity...” is not a complete sentence; the word “Although” makes it a dependent clause. To join a dependent clause to an independent clause, use a comma, as in **D**. **A** creates a sentence fragment. **B** and **C** confuse the issue further by adding conjunctions that are not needed.
58. **H** **F**, **G**, and **J** all add unnecessary redundancies. “Increasingly,” “evermore,” and “more” all mean the same thing, just as “violent” and “full of anger, blood and shooting” mean the same thing.
59. **C** The correct preposition here is “in,” **C**. Try reading the sentence without “both within the movie industry and.” It should be clear that “Considering the great changes *in* public taste” is correct.
60. **H** The essay’s main function is to inform; it provides a brief history of the rise of “slasher” films and closes with questions about violence in movies for the reader to consider. While it is true that the writer uses a serious tone and associates a violent society with violent films, **F** and **G**, the writer never directly suggests that people should stop viewing these films. Although the writer does not suggest different forms of entertainment, **J**, this is not the clearest reason for the essay’s failure to meet the stated goal of persuading people to stop viewing slasher films.

The Bermuda Triangle

61. **D** To answer this question, you needed to read the whole sentence, which explains that these ships have been found “deserted.” Since “deserted” means about the same thing as “abandoned” and “empty” in **A**, **B**, and **C**, the problem here is redundancy. **D** creates the most concise sentence.
62. **G** The original version of the sentence, choice **F**, is actually a fragment. “Without transmitting distress signals” serves as an introductory phrase, but “some ships having vanished forever” is not a complete thought. Remember, an *-ing* verb cannot be the main verb of a sentence without a helping verb like “are” or “were.” Choice **G** corrects the verb error with “have vanished.” The word order in choice **H** does not make sense; it is unclear what exactly “some ships have been.” Choice **J** uses the awkward construction “have been without a transmitted distress signal” instead of the more active “have not transmitted a distress signal.”
63. **B** The detail that some rescue missions have vanished in the area is used as one example of the unexplained disappearances mentioned in the first sentence of the paragraph. The sentence doesn’t provide a specific image about any one rescue mission, so **A** is off the mark. It is unclear how the example makes the writer more credible, or believable, **B**. The sentence does not tell us what the author believes about the so-called disappearances, so **D** is incorrect.
64. **H** The idiomatically correct expression is “range *from...to...*” **F** uses the incorrect preposition “toward,” and **G** creates the idiomatically incorrect “to...to.” **J** drops the preposition, creating the idiomatically incorrect “range the interference of UFOs to.”

65. **C** Items being compared or listed in a sentence should be in parallel structure. In **C**, “the existence of powerful fields” correctly uses a noun and object to parallel the structure of “the interference of UFOs.” None of the other choices follow this structure.
66. **H** **H**, although wordier than some of the other choices, is the only one that is grammatically correct. “Who’s,” which is the contraction for either “who is” or “who has,” does not make sense in this context. **G** creates a sentence fragment. **J**, the contraction for *that* or *that was*, is also incorrect as used here.
67. **C** The simple conjunction “and,” **C**, is needed here. The region’s boundaries are the southern U.S. coast *and* the Greater Antilles. **A** and **B** incorrectly use prepositions that describe a relationship between the U.S. coast and the Greater Antilles instead of clarifying how both relate to the “triangular region.” Although “in addition” in **D** indicates that the Greater Antilles are also a boundary of the region, this choice omits the preposition “to,” forming the idiomatically incorrect “in addition the Greater Antilles.”
68. **G** Inappropriate statements usually stick out. You stop reading and wonder why you were told something. That doesn’t happen here, so the mention of Juan de Bermudez is probably appropriate. Now consider why it is appropriate. **H** is incorrect and **J** has nothing to do with why the mention of Bermudez is appropriate. **G** is correct. (If you’re not sure the statement is relevant, look at the reason given for saying it’s not: exploration and the Bermuda triangle are not dissimilar, since we are talking about the exploration of Bermuda.)
69. **B** The second clause explains why one has to wonder if Bermudez “experienced anything strange.” The two independent clauses should be connected with a conjunction that indicates an explanation; “for” in **B** accomplishes this. **A** doesn’t clarify the relationship between the two sentences. The first clause doesn’t serve as an introduction to the second, so the colon in **C** is incorrect. **D** correctly uses a comma and a coordinating conjunction, but the coordinating conjunction “so” suggests a cause-and-effect relationship that does not exist between the two clauses.
70. **J** Strange events in the Bermuda Triangle were reported in the past and continue today, so the present perfect tense “have been” is correct, **J**. The past perfect tense “had been” in **G** is used for past actions that were completed *before* other past actions, which is not the case in this sentence. The past progressive tense “were being” in **G** doesn’t work because it suggests that another past action was taking place while the strange events were being reported. The sentence is not about a hypothetical situation, so “would be” in **H** is inappropriate.
71. **C** The correct word here is “how” in **C**. You question “how” something can occur; you don’t question “so” it can occur or “which” it can occur, **A** and **B**. **D** changes the meaning of the sentence with “question that.” This suggests that those who criticize the claims of strange events in the Bermuda Triangle wonder if people can continue to travel safely through the region. The critics don’t believe in the strange events, so it’s unlikely that they would question whether it is safe to travel in the region.

72. **H** What new information would be a continuation of the topic? The passage at this point isn't talking about geography (**F**), the tourist trade (**J**), or other supernatural phenomena (**G**). It is discussing doubts about whether there have been supernatural occurrences in the Bermuda triangle.
73. **D** The only alternative that is NOT acceptable is **D**, which creates a sentence fragment, or dependent clause, starting with the subordinating conjunction "Although." The fragment "Although people will continue to be intrigued..." does not state a complete thought. **A** correctly uses a comma and the coordinating conjunction "but" to connect two independent clauses. **B** correctly uses a semicolon to separate the independent clauses, along with the contrasting transition "however." **C** creates two separate and complete sentences.
74. **H** The key in the question stem is that the assignment was to write about "one specific disappearance" in the Bermuda Triangle. Although the writer briefly describes how ships and planes have disappeared, the writer does not give an actual account of one *specific* disappearance. An account would involve details, such as the type of plane, where it was going, how many people were aboard, and when it disappeared. Instead, the writer uses generalities to discuss the Bermuda Triangle, **H**. The passage does contain factual information, so **J** is incorrect.
75. **B** Paragraph 1 is a discussion of the types of strange events that have been reported. It should logically come after the introduction of the fact that strange events have been reported. **B** is correct since paragraph 2 introduces the fact that strange events have been reported.

1. **C** Find x by isolating it on one side of the equation:

$$5x + 3 = -17$$

Subtract 3 from both sides. $5x = -20$

Divide both sides by 5. $x = -\frac{20}{5}$

Simplify. $x = -4$

Alternatively, use Backsolving. $5x + 3 = -17$ will only be true for the correct value of x . Since the answer choices are in numerical order, try **C** first.

$$\begin{aligned} x &= -4 \\ 5(-4) + 3 &= -17 \\ -20 + 3 &= -17 \\ -17 &= -17 \end{aligned}$$

This is true, so **C** must be correct.

2. **H** Six people are served by 4 oranges, 5 pears, 10 apples, and 24 strawberries. Eighteen people, that is, 3×6 people, will need 3 times as much, that is 3 times as many of each ingredient. So John needs $3 \times 5 = 15$ pears.

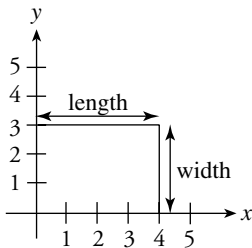
3. **D** Factor both numbers:

$$8 \times 10^9 = 2 \times 2 \times 2 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10$$

$$6 \times 10^3 = 2 \times 3 \times 10 \times 10 \times 10$$

Since both numbers have a factor of 2 and 3 factors of 10, the greatest integer that is a factor of both is $2 \times 10 \times 10 \times 10 = 2 \times 10^3$.

4. **J**



Area of a rectangle = length \times width

From the diagram, length = 4 and width = 3. Therefore, area = $4 \times 3 = 12$.

5. **A** Draw a diagram to help visualize the situation:



As can be seen from the diagram, the length of the band is the same as the circumference of the cylinder. The circumference of a cylinder and the circumference of a circle are determined in the same way: $Circumference = 2\pi r$.

$$2 \times \pi \times 4 = 8\pi$$

6. **F** For every large jar there are 48 olives, so x large jars hold $48x$ olives.

For every small jar there are 32 olives, so y small jars hold $32y$ olives.

The total number of olives needed is $48x + 32y$.

This problem could also be attacked by Picking Numbers. Let $x = 1$ and $y = 2$. Then there is one large jar needing 48 olives, and two small jars needing $2 \times 32 = 64$ olives, for a total of $48 + 64 = 112$ olives. Any answer choice that does not result in 112 when $x = 1$ and $y = 2$ may be eliminated.

F $48x + 32y = 48 \times 1 + 32 \times 2 = 112$ — This may be correct.

G $\frac{x}{48} + \frac{y}{32} = \frac{1}{48} + \frac{2}{32} \neq 112$ — Discard.

H $\frac{xy}{80} + \frac{1 \times 2}{80} = \frac{2}{80} \neq 112$ — Discard.

J $80xy = 80 \times 1 \times 2 \neq 112$ — Discard.

K $\frac{1536}{xy} = \frac{1536}{1 \times 2} = 768 \neq 112$ — Discard.

Since **A** was the only one to give the appropriate answer, it is correct.

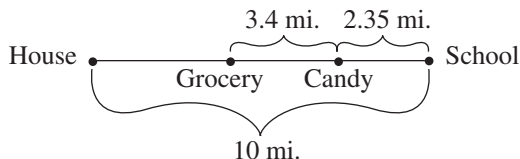
7. **E** Substitute $x + 1$ for x in the expression $3x^2 + 4$.

$$\begin{aligned} & 3(x + 1)^2 + 4 \\ &= 3(x^2 + 2x + 1) + 4 && \text{Expand } (x + 1)^2. \\ &= 3x^2 + 6x + 3 + 4 && \text{Multiply out parentheses.} \\ &= 3x^2 + 6x + 7 && \text{Gather like terms.} \end{aligned}$$

8. **K** $5\frac{5}{6} + 3\frac{5}{8} + 1\frac{1}{3}$

$$\begin{aligned} &= 5 + 3 + 1 + \frac{5}{6} + \frac{5}{8} + \frac{1}{3} \\ &= 9 + \frac{5}{6} + \frac{5}{8} + \frac{1}{3} \\ &= 9 + \frac{20}{24} + \frac{15}{24} + \frac{8}{24} && \text{Find a common denominator.} \\ &= 9 + \frac{43}{24} \\ &= 9 + 1\frac{19}{24} \\ &= 10\frac{19}{24} \end{aligned}$$

9. **B** Draw a diagram:



It is $2.35 + 3.4 = 5.75$ miles from the school to the grocery store. The distance from the grocery store to home is the remaining portion of the 10 miles between school and home. That is, $10 \text{ miles} - 5.75 \text{ miles} = 4.25 \text{ miles}$.

10. **F** The teacher gives Harry 3 pieces every week for 4 weeks, for a total of $3 \times 4 = 12$ pieces. He can learn 2 new pieces per week. Learning 12 pieces will take him $12 \div 2 = 6$ weeks.
11. **D** The sum of the interior angles of any triangle is 180° , so:

$$\begin{aligned}\angle EDF + \angle DFE + \angle DEF &= 180^\circ \\ 35^\circ + 65^\circ + \angle DEF &= 180^\circ \\ \angle DEF &= 180^\circ - 35^\circ - 65^\circ \\ \angle DEF &= 80^\circ\end{aligned}$$

12. **G** Average = $\frac{\text{Sum of Terms}}{\text{Number of Terms}}$

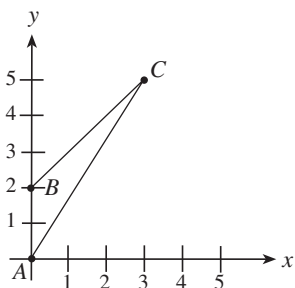
In this case, Randy needs an average of 175. Let the score on the next game be x .

$$\text{Then } 175 = \frac{150 + 195 + 160 + x}{4}$$

$$\begin{aligned}175 \times 4 &= 150 + 195 + 160 + x && \text{Cross-multiply.} \\ 700 &= 505 + x \\ 700 - 505 &= x \\ 195 &= x\end{aligned}$$

So she must score 195 on the next game for an average of 175.

13. **E** Draw a diagram:



Run through the answer choices to see which one works.

- A** $\angle ABC$ is greater than 90° — Discard.
- B** All three sides are *not* the same length — Discard.

- C** No sides are the same length — Discard.
- D** No angle measures 90° — Discard.
- E** One angle, $\angle ABC$, is greater than 90° — This is correct.

14. **J** Simplify the equation:

$$2y^2 - 4y - 6 = 0$$

$$2(y^2 - 2y - 3) = 0$$

$$y^2 - 2y - 3 = 0$$

Now factor:

$$(y - 3)(y + 1) = 0$$

$$y = -1 \text{ and } y = 3$$

The sum of 3 and -1 is 2, **J**.

15. **B** The numbers you're looking for will make an arithmetic sequence, in which each term differs from the next by the same amount. In this sequence, 11 is the first term and 47 is the fifth term. You can express the unknown terms as follows, with x representing the difference between terms:

First term: 11

Second term: $11 + x$

Third term: $11 + x + x$

Fourth term: $11 + x + x + x$

Fifth term: $11 + x + x + x + x = 47$

Solve for the value of x .

$$11 + x + x + x + x = 47 \quad \text{Add like terms.}$$

$$11 + 4x = 47 \quad \text{Subtract to isolate the variable.}$$

$$4x = 36 \quad \text{Divide to isolate the variable.}$$

$$x = 9$$

The difference between terms is 9, so the sequence is 11, 20, 29, 38, 47, **B**.

16. **F** Translate:

"June has 20 marbles more than Billy"

$$J = B + 20$$

"Maria has 3 times as many marbles as Billy"

$$M = 3B$$

"Altogether they have 100 marbles,"

$$J + M + B = 100$$

You need B , the number of marbles Billy has.

Express J and M in terms of B to get $B + 20 + 3B + B = 100$.

Gather like terms. $5B + 20 = 100$

Subtract 20. $5B = 80$

Divide by 5. $B = 16$

So Billy has 16 marbles.

17. **B** Rather than graphing the equation, the quickest way to solve this is to substitute 6 for x in the equation, and then solve for y .

$$3x - 2y = 4$$

Substitute $x = 6$. $3(6) - 2y = 4$

Multiply. $18 - 2y = 4$

Subtract 18 from both sides. $-2y = -14$

Divide both sides by -2 . $y = \frac{-14}{-2}$

Simplify. $y = 7$

18. **F** When a transversal cuts parallel lines, all acute angles formed are equal and all obtuse angles formed are equal. So here all obtuse angles have measure p and all acute angles measure q . The question says that “the measure of $\angle p$ is 20° less than three times the measure of $\angle q$,” that is $p = 3q - 20$. Also, $p + q = 180$, since p and q are supplementary angles, that is they form a straight line.

Solve for q :

$$p + q = 180$$

Substitute $3q - 20$ for p . $3q - 20 + q = 180$

Gather like terms. $4q - 20 = 180$

Add 20 to both sides. $4q = 200$

Divide both sides by 4. $q = 50$

So $p = 3q - 20 = 3(50) - 20 = 150 - 20 = 130$.

$p - q = 130 - 50 = 80$.

19. **E** Do NOT solve all the systems of equations—this would be too time consuming. Think about the problem first. The solution of a system of equations is the point where these equations intersect—if the lines are parallel, they will not intersect and there will be no solution. The lines that are parallel will have the same slope. The answer choices are all in the form $ax + by = c$. You could find the slope if the equation was in the slope-intercept equation form. This can be done by subtracting ax from both sides, and dividing by b to get $y = -\frac{a}{b}x + \frac{c}{b}$, so here
- Slope = $-1 \cdot \frac{\text{the coefficient of } x}{\text{the coefficient of } y}$

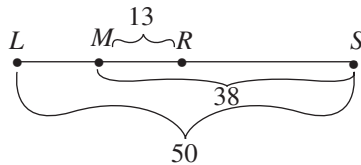
A Slope of 1st equation = $-\frac{1}{3}$

Slope of 2nd equation = $-\frac{3}{1} = -3$

The slopes are different: Discard.

- B** Slope of 1st equation = $-\frac{1}{3}$
 Slope of 2nd equation = $-\frac{1}{-3} = \frac{1}{3}$
 The slopes are different: Discard.
- C** Slope of 1st equation = $-\frac{1}{-3} = \frac{1}{3}$
 Slope of 2nd equation = $-\frac{3}{-1} = 3$
 The slopes are different: Discard.
- D** Slope of 1st equation = $-\frac{1}{-3} = \frac{1}{3}$
 Slope of 2nd equation = $-\frac{-3}{1} = -3$
 The slopes are different: Discard.
- E** Slope of 1st equation = $-\frac{1}{3}$
 Slope of 2nd equation = $-\frac{3}{9} = -\frac{1}{3}$
 Since these slopes are the same, there is no solution to this system of equations.

20. **J** Mark in the lengths.



The distance LR is the distance LM plus the distance MR .

The distance MR is 13.

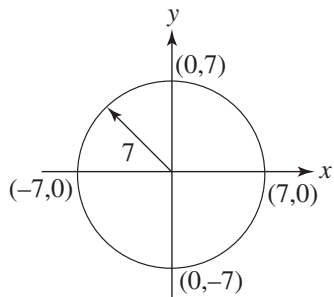
The distance LM is the distance LS minus the distance MS . That is $50 - 38 = 12$.
 Therefore, $LR = 12 + 13 = 25$.

Note: You could have discarded **A** straight away— LR must be longer than MR .

21. **D** $133\frac{1}{3}\%$ is 4 times $33\frac{1}{3}\%$.
 So, if $33\frac{1}{3}\%$ of $t = 9$, then $133\frac{1}{3}\%$ of $t = 4 \times 9 = 36$.
22. **G** Since $\tan = \frac{\text{opposite}}{\text{adjacent}}$, you need to know the lengths of the side opposite x , \overline{DE} , and the side adjacent to x , \overline{FE} .
 Since $DE = 1$ and $DF = \sqrt{2}$, this must be an isosceles right triangle with sides in the ratio $x : x : x\sqrt{2}$. (You could also determine this by using the Pythagorean Theorem.)
 So $DE = FE = 1$.

$$\tan x = \frac{\text{opposite}}{\text{adjacent}} = \frac{DE}{FE} = \frac{1}{1} = 1$$

23. **C** Draw a diagram.



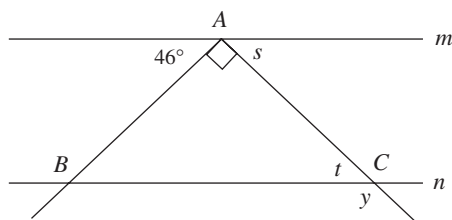
Obviously **A** and **D** lie on the circle—eliminate these answer choices. The formula for a circle is $(x - a)^2 + (y - b)^2 = r^2$, where a and b are the x and y coordinates of the center, and r is the radius. In this case the center is $(0,0)$ and r is 7. Therefore, the equation of this circle is $x^2 + y^2 = 49$, and any point which is not on the circle will not satisfy this equation.

B $(-3, 2\sqrt{10})$: $(-3)^2 + (2\sqrt{10})^2 = 9 + 40 = 49$ — Discard.

C $(\sqrt{7}, 3)$: $(\sqrt{7})^2 + 3^2 = 7 + 9 = 16 \neq 49$ — This point is not on the circle, so **C** is correct.

24. **K** This question asks you to count possibilities. When there are m ways one event can happen and n ways a second event can happen, then there are $m \times n$ ways for the two events to happen. The selection of the male speaker is the first event; the selection of the female speaker is the second event. There are 90 female seniors and 75 male seniors, so there are $90 \times 75 = 6,750$ different possible combinations.

25. **D** The transversal \overline{AC} forms equal acute angles s and t labeled below.



The angle marked by 46° , the right angle, and angle s make up a straight line, so they sum to 180° .

$$46 + 90 + s = 180$$

$$s = 44$$

s and t are equal acute angles formed by the same transversal, \overline{AC} , so t also has a measure of 44° .

Since y and t are supplementary, $y + t = 180$, that is $y = 180 - 44 = 136$.

26. **F** Plug in (-3) for s .

$$\begin{aligned} & s^3 + 2s^2 + 2s \\ &= (-3)^3 + 2(-3)^2 + 2(-3) \\ &= -27 + 2(9) + (-6) \\ &= -27 + 18 - 6 \\ &= -15 \end{aligned}$$

27. **D** Notice that in the expression $r(t + u) - s(t + u)$ both r and s are being multiplied by $t + u$. Factor this out to get $(r - s)(t + u)$.

If you didn't see this, you could have tried Picking Numbers. Let $r = 2$, $s = 3$, $t = 4$ and $u = 5$.

$$\text{Then } r(t + u) - s(t + u) = 2(4 + 5) - 3(4 + 5) = 18 - 27 = -9.$$

Any of the answer choices that does not give a value of -9 for these values of r , s , t , and u may be discarded.

A $(r + s)(t + u) = (2 + 3)(4 + 5) = (5)(9) = 45$ — Discard.

B $(r - s)(t - u) = (2 - 3)(4 - 5) = (-1)(-1) = 1$ — Discard.

C $(r + s)(t - u) = (2 + 3)(4 - 5) = (5)(-1) = -5$ — Discard.

D $(r - s)(t + u) = (2 - 3)(4 + 5) = (-1)(9) = -9$ — This may be correct.

E 0 — Discard.

D is the only one that gives a value of -9 for the chosen values, so it must be correct.

28. **F** $DB = 4$, that is \overline{DB} is half the length of \overline{AB} .

$\triangle ABC$ and $\triangle DBF$ are similar, since corresponding angles are of the same measure.

Therefore, their sides are in the same ratio, i.e. $\frac{AB}{BC} = \frac{DB}{BF}$.

Plug in the values $AB = 8$, $BC = 6$, and $DB = 4$. $\frac{8}{6} = \frac{4}{BF}$

Cross-multiply.

$$8 \times BF = 4 \times 6$$

Isolate the unknown and solve.

$$BF = \frac{24}{8} = 3$$

The area of a triangle is $\frac{1}{2}(\text{base} \times \text{height})$.

$$\frac{1}{2}(3 \times 4) = 6$$

Note: You could have discarded **J** and **K** by logic—the area of the smaller triangle must be less than the area of the larger triangle, which is $\frac{1}{2}(6 \times 8) = 24$.

29. **D** In this question, i is an imaginary number—it involves the square root of a negative. For the purpose of this question, though, you just need to multiply binomials and add like terms.

$$(9 + i)^2 = (9 + i)(9 + i)$$

Multiply the first terms, then the outer and inner terms, and then the last terms:

$$(9 + i)(9 + i) = 81 + 9i + 9i + i^2$$

Substitute -1 for i^2 . $81 + 9i + 9i - 1$

Add like terms. $80 + 18i$

30. **G** The area of a triangle is $\frac{1}{2}(\text{base} \times \text{height})$. In this case the area is 45 square units and the base is XZ , which is $3 + 12 = 15$. The height is YS .

$$\begin{aligned} \text{So: } 45 &= \frac{1}{2}(15 \times YS) \\ 45 \times 2 &= 15 \times YS \\ 90 \div 15 &= YS \\ 6 &= YS \end{aligned}$$

31. **A** The circumference of a circle is πd , where d is the diameter. Here the diameter is 10, so the circumference is 10π .

32. **K** Rearrange the formula.

$$A = \pi rs + \pi r^2$$

Factor out π . $A = \pi(rs + r^2)$

$$A = \pi(rs + rr)$$

Factor out an r . $A = \pi r(s + r)$

Alternatively, Pick Numbers.

Let $r = 2$ and $s = 3$.

Then $A = \pi rs + \pi r^2 = \pi(2)(3) + \pi(2)^2 = 10\pi$.

Any answer that does not give a result of 10π can be eliminated.

A $A = 2\pi rs = 2\pi(2)(3) = 12\pi$ — Discard.

B $A = 2\pi r^2 s = 2\pi(2)^2(3) = 24\pi$ — Discard.

C $A = \pi r(1 + s) = \pi(2)(1 + 3) = 8\pi$ — Discard.

D $A = \pi r^2(1 + s) = \pi(2)^2(1 + 3) = 16\pi$ — Discard.

E $A = \pi r(r + s) = \pi(2)(2 + 3) = 10\pi$ — This must be correct.

33. **B** Get $5x + 3y = 13$ into the form of the slope-intercept equation, $y = mx + b$. Then m will be the slope.

$$5x + 3y = 13$$

Subtract $5x$. $3y = -5x + 13$

Divide by 3. $y = -\frac{5}{3}x + \frac{13}{3}$

So $m = \text{slope} = -\frac{5}{3}$.

34. **G** Try to disprove the statements by Picking Numbers.

Let $a = b = 1$. Then $|a - b| + \sqrt{b - a} = |1 - 1| + \sqrt{1 - 1} = 0 + 0 = 0$.

So if $a = b$, the answer is not always negative. Discard **J**.

Since 0 is neither positive nor negative, also discard **H**.

Try fractions. Let $a = \frac{1}{2}$ and $b = \frac{3}{4}$. Then $|a - b| + \sqrt{b - a} = \left| \frac{1}{2} - \frac{3}{4} \right| + \sqrt{\frac{3}{4} - \frac{1}{2}} = \frac{1}{4} + \sqrt{\frac{1}{4}}$. This is not equal to an integer, so discard **F**.

What if $a = -1$ and $b = -2$? Then $|a - b| + \sqrt{b - a} = |(-1) - (-2)| + \sqrt{(-2) - (-1)}$
 $= 1 + \sqrt{-1}$.

The square root of -1 is not real, so discard **K**. That only leaves **G**, which must then be correct.

35. **D** Start by expressing the ratios as fractions.

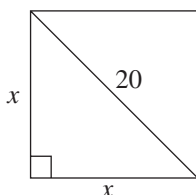
$$\frac{x}{y} = \frac{2}{5} \qquad \frac{z}{y} = \frac{2}{3}$$

To compare the numerators x and z , you need to find a common denominator for y . In this case, 15 is the least common denominator.

$$\frac{x}{y} = \frac{2}{5} \times \frac{3}{3} = \frac{6}{15} \qquad \frac{z}{y} = \frac{2}{3} \times \frac{5}{5} = \frac{10}{15}$$

So the ratio of x to z is $\frac{6}{10}$, which reduces to $\frac{3}{5}$. This is also expressed as 3 to 5, **D**.

36. **G** Draw a diagram.



The sides of the square are the legs of a right triangle.

Use the Pythagorean Theorem:

$$\text{leg}_1^2 + \text{leg}_2^2 = \text{hypotenuse}^2$$

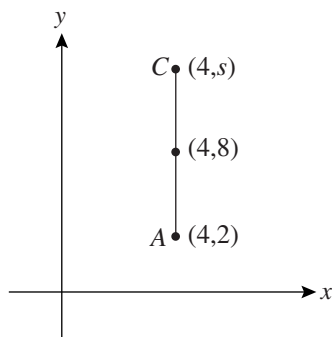
$$\begin{aligned} x^2 + x^2 &= 20^2 \\ 2x^2 &= 400 \\ x^2 &= 200 \\ x &= \sqrt{200} \end{aligned}$$

Get the radical into the form of the answer choices: $x = \sqrt{200} = \sqrt{100} \times \sqrt{2} = 10\sqrt{2}$.

37. **C** $(3a - 4)(a + 2)$:
 First $3a \times a = 3a^2$
 Outer $3a \times 2 = 6a$
 Inner $-4 \times a = -4a$
 Last $-4 \times 2 = -8$

$$\text{Combine: } 3a^2 + 6a - 4a - 8 = 3a^2 + 2a - 8$$

38. **K** Draw a diagram.



The midpoint must be the same distance from A and C . Since it is 6 units above point A , it must be 6 units below point C . Therefore, C must have a y -coordinate of 14.

39. **A** The logarithm of a number n in relation to a base b is the exponent to which the base needs to be raised to get n .

Therefore, the value of $\log_5 625$ is the exponential power of 5 that results in 625.

$$5 \times 5 \times 5 \times 5 = 625, \text{ or } 5^4 = 625.$$

So $\log_5 625 = 4$, **A**.

40. **H** Since $\angle SAB$ and $\angle BAC$ are supplementary, $\angle SAB + \angle BAC = 180^\circ$. Since $\angle SAB = 130^\circ$, $\angle BAC = 50^\circ$. You now have two of the interior angles of $\triangle ABC$. Since the sum of interior angles in a triangle is 180° , $\angle BAC + \angle ABC + \angle ACB = 180^\circ$. That is, $50^\circ + 80^\circ + \angle ACB = 180^\circ$. Therefore, $\angle ACB = 50^\circ$.

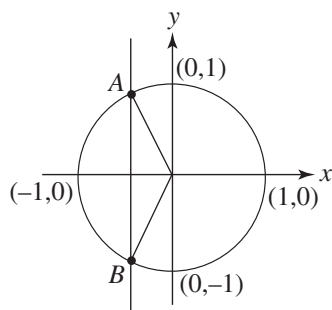
$\angle EDC$ is supplementary to $\angle QDC$. Since $\angle QDC = 110^\circ$, $\angle EDC = 70^\circ$. You now have two interior angles of $\triangle DEC$. The third is $\angle DEC$. Since the sum of interior angles in a triangle is 180° , $\angle DEC + \angle DCE + \angle EDC = 180^\circ$. That is, $\angle DEC + 50^\circ + 70^\circ = 180^\circ$. Therefore, $\angle DEC = 60^\circ$.

41. **C** Jack lost $\$200 - \$170 = \$30$.

$$\text{Percent} = \frac{\text{Part}}{\text{Whole}} \times 100\%$$

$$\frac{\$30}{\$200} \times 100\% = 15\%$$

42. **J** Consider the unit circle.



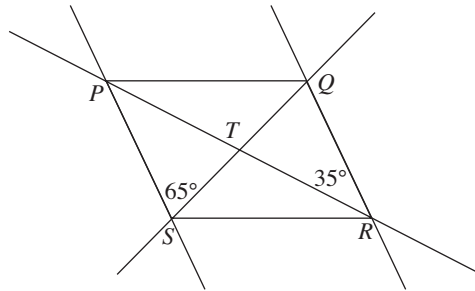
Cosine $x = -\frac{1}{2}$ for those values where $x = -\frac{1}{2}$ on the unit circle, in this case A and B . From the diagram, it can be seen that this occurs at $\frac{2\pi}{3}$ and $\frac{4\pi}{3}$.

43. **B** The fastest way to solve is by Backsolving. Plug the answer choices into $5x^2 + 2x - 7$ and see which one equals 0:

A $5(-7)^2 + 2(-7) - 7 = 245 - 14 - 7 = 225 \neq 0$ — Discard.

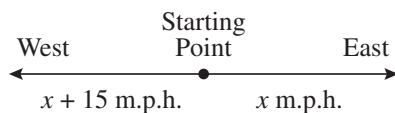
B $5\left(-\frac{7}{5}\right)^2 + 2\left(-\frac{7}{5}\right) - 7 = 5\left(\frac{49}{25}\right) - \frac{14}{5} - 7 = \frac{49}{5} - \frac{14}{5} - 7 = \frac{35}{5} - 7 = 0$ — This is the correct answer.

44. **J** It might help to redraw the diagram, extending lines:



There are two parallel lines and two transversals. Since all acute angles formed by a transversal are the same size, $\angle PST = \angle TQR = 65^\circ$. So $\triangle QRT$ has an interior angle of 65° ($\angle TQR$) and another of 35° ($\angle QRT$). Since the sum of the interior angles in a triangle is 180° , $\angle QTR = 180^\circ - 65^\circ - 35^\circ = 80^\circ$. Since $\angle QTR$ and $\angle PTQ$ are supplementary, $\angle PTQ = 180^\circ - 80^\circ = 100^\circ$.

45. **C** Let the rate that Ms. Rodriguez travels at be x m.p.h.



The speeds the cars were traveling at is needed to find how far either car traveled.

Use the distance formula to find x .

Distance = Rate \times Time

In this case:

Distance = (Ms. Rodriguez's speed \times 5 hours) + (Ms. Green's speed \times 5 hours)

475 miles = $(x$ m.p.h. \times 5 hours) + $((x + 15)$ m.p.h. \times 5 hours)

475 miles = $5x$ miles + $5x$ miles + 75 miles

400 miles = $10x$ miles

$40 = x$

So Ms. Rodriguez drives at 40 m.p.h. and Ms. Green at 55 m.p.h.

In 5 hours the faster car will travel 55 m.p.h. \times 5 hours = 275 miles.

46. **G** If the equation of a line is expressed in the form $y = mx + b$, then m is the slope and b is the y -intercept. From the graph it can be seen that the slope is negative, since y decreases as x increases. (Any line that rises as you move right has a positive slope; any that falls off as you go right has a negative slope). So m is negative. The line crosses the y -axis above the x -axis, so the y -intercept, b , is positive. The only answer choice that agrees with this is **G**.

47. **B** If $xy \neq 0$, then $x \neq 0$ and $y \neq 0$.

The square of any number is positive, so x^2 and y^2 are positive.

The larger the magnitude of any number, the larger the square of that number. So if $|y| < |x|$, that means $y^2 < x^2$. (Note that $|x|$ is the absolute value of x and can be found simply by dropping the negative sign if x is negative. For instance, $|4| = 4$ and $|-7| = 7$.)

Since x^2 and y^2 are also both positive and $x^2 > y^2$, the numerator of the fraction $\frac{x^2}{y^2}$ will be greater than the denominator, i.e., the entire fraction must be greater than 1.

48. **J** If you did not recognize the common quadratic $a^2 - 2ab + b^2 = (a - b)^2$, you could factor the expression $a^2 - 2ab + b^2$ using FOIL in reverse.

$$a^2 - 2ab + b^2 = (a - b)(a - b) = (12)(12) = 144$$

49. **E** $\angle EDF = x$.

" $\angle DEF$ is 30° greater than the measure of $\angle EDF$ " means that $\angle DEF = x + 30$.

" $\angle EFD$ is 15° less than the sum of the measures of $\angle EDF$ and $\angle DEF$ " means that $\angle EFD = (x + x + 30) - 15 = 2x + 15$.

50. **H** When a transversal cuts parallel lines, all acute angles formed are equal and all obtuse angles formed are equal.

$$\text{So } \angle ATR = \angle CRP = 110^\circ.$$

Since $\angle ATQ$ and $\angle ATR$ form a straight line, their sum is 180° .

$$\text{So } \angle ATQ + 110^\circ = 180^\circ.$$

$$\angle ATQ = 70^\circ$$

51. **E** Since $\sin^2\theta + \cos^2\theta = 1$, for all values of θ , and $x = \sin \theta$ and $y = \cos \theta$, then $x^2 + y^2 = 1$.

52. **K** All answers are in the form of the slope–intercept equation, $y = mx + b$, where m is the slope and b is the y -intercept.

Line T has a y -intercept of -3 , so in this case $b = -3$. (Discard **F**, **H**, and **J**.)

Since T is parallel to $3x - 5y = 4$, the lines have the same slope. Find the slope of $3x - 5y = 4$:

$$3x - 5y = 4$$

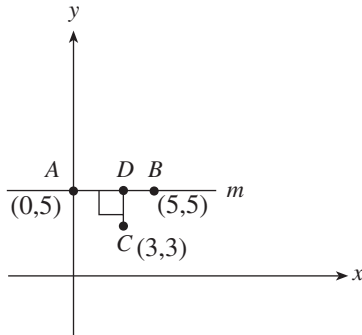
$$-5y = -3x + 4$$

$$y = \frac{3}{5}x - \frac{4}{5}$$

So the slope is $\frac{3}{5}$ and line T has equation $y = \frac{3}{5}x - 3$.

53. **D** Simply count the number of spaces between A and B on the number line. If the distance is too great to count, in general the distance between any two points A and B is $|A - B|$.

54. **F**



As can be seen from the diagram above, the shortest distance between C and line m is \overline{CD} . Since \overline{CD} is parallel to the y -axis, the length of \overline{CD} is the difference between the y -coordinates of D and C . Since line m is parallel to the x -axis, and passes through point $(0, 5)$, all points on line m have a y -coordinate of 5. Since C has a y -coordinate of 3, the distance CD is $5 - 3$, or 2.

55. **E** Rearrange the inequality:

$$-2 - 4x \leq -6x$$

Add 2 to both sides. $-4x \leq -6x + 2$

Add $6x$ to both sides. $2x \leq 2$

Divide both sides by 2. $x \leq 1$

56. **H** The figure is a rectangle with two smaller rectangles cut out of it. The total area is the area of the large rectangle minus the area of the cutouts.

The area of any rectangle is length \times width.

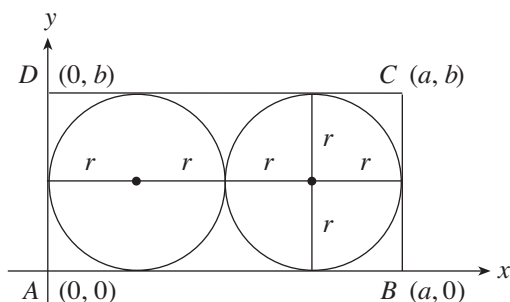
The area of the large rectangle = $8 \times 10 = 80$.

The area of the top cutout rectangle = $3 \times 4 = 12$.

The area of the bottom cutout rectangle = $3 \times 2 = 6$.

Total area = $80 - 12 - 6 = 62$.

57. D



As can be seen from the above diagram, a is the distance between A and B , that is the length of the rectangle $ABCD$. This is equal to $4r$.

Similarly, b is the distance between A and D , that is $2r$.

So $a - b = 4r - 2r = 2r$.

58. H Find the number of teenagers in each age group:

“20 teenagers are 15 years old:” 20 15-year-olds

“8 are 18 years old:” 8 18-year-olds

“20% are 14 years old:” 20% of $60 = \frac{1}{5} \times 60 = 12$ 14-year-olds

“There are twice as many 16-year-olds as there are 18-year-olds:” There are 8 18-year-olds, so there are $2 \times 8 = 16$ 16-year-olds. Since there are 60 teenagers total, the remainder are 17-year-olds.

$60 - 20 - 8 - 12 - 16 = 4$ 17-year-olds

There is a total of $4 + 8 = 12$ 17- & 18-year-olds.

Since $\text{Percent} = \frac{\text{Part}}{\text{Whole}} \times 100\%$, in this case $\text{Percent} = \frac{12}{60} \times 100\% = 20\%$.

59. B Probability of an event occurring = $\frac{\text{Number of desired events}}{\text{Number of possible events}}$

In this case, the desired event is not picking a blue T-shirt. Since 7 T-shirts are not blue, the number of desired events is 7.

The number of possible events is the total number of T-shirts that could be picked, that is $5 + 7$, or 12.

So the probability of not picking a blue T-shirt = $\frac{7}{12}$.

60. F The correct equation will be true for all the points on the ellipse. Four points are given in the diagram. Run them through the equations in the answer choices. If the equation is not true for any one of these points, it may be discarded.

F Try $(0,2)$ in $\frac{x^2}{25} + \frac{y^2}{4} = \frac{0^2}{25} + \frac{2^2}{4} = \frac{4}{4} = 1$

Now try $(5,0)$: $\frac{x^2}{25} + \frac{y^2}{4} = \frac{5^2}{25} + \frac{0^2}{4} = \frac{25}{25} = 1$

Now try $(-5,0)$: $\frac{x^2}{25} + \frac{y^2}{4} = \frac{(-5)^2}{25} + \frac{0^2}{4} = \frac{25}{25} = 1$

Now try $(0,-2)$: $\frac{x^2}{25} + \frac{y^2}{4} = \frac{0^2}{25} + \frac{(-2)^2}{4} = \frac{4}{4} = 1$

Since the equation is true for all 4 points, this is the correct answer.

READING

Passage I

This is a Fiction passage, so ask yourself these three important questions. First, who are these people? George Webber is a young writer who has just heard that his novel has been accepted for publication. Second, what is their state of mind? George is feeling many things at once: happiness about having a novel accepted for publication, fear that parts of the novel might offend some people, eagerness to see a chapter of his novel published in a magazine, dread at the prospect of writing a second novel, and disappointment when people did not react to his writing in the way he had expected. Finally, what's going on in the passage? George is going through some very mixed feelings. Although he is extremely excited about realizing his dream of becoming a writer, he's at the same time realizing that what is so momentous to him—publication of his novel—is not really all that important to the rest of the world.

1. **D** Check back to the passage to make sure that your answer works in context. Lines 36–38 explain that George was concerned that “some people might recognize themselves and be offended.” This is what made him think he might have “to go around in smoked glasses and false whiskers.” **A** is Opposite. George is worried about people he used as characters in his novels who might be offended by his work, not about people who might admire his writing. In fact, as the last paragraph shows, George wants to be admired by a reading audience. George’s next book is discussed in the passage, but nothing suggests that he needs to do undercover research for his new novel, **B**. **C** is Out of Scope. The passage never goes into a description of how famous writers should look.
2. **F** The sixth paragraph (lines 61–73) discusses George’s feelings about writing his next novel. Lines 64–66 state that writing for him is “like a demoniacal possession, driving him with alien force much greater than his own.” This idea is paraphrased by **F**. **J** is a Distortion. The passage mentions “physical fatigue” in line 71 in reference to George’s need to exercise to the point of exhaustion in order to fall asleep. Nothing suggests that he could write only while physically exhausted.
3. **B** The paragraph (lines 61–73) preceding the quote by George Webber to Foxhall Edwards explains the difficult, tortuous process that George goes through in writing. George probably sensed that his agony and fatigue would be obvious to Fox and others, but he knew that without this agony he would not be able to do good work. Lines 62–63 especially show that George knew that the act of writing would be painful—he would “get it out of him.” Therefore, **B** best describes George’s reason for offering the quote in question. Nothing suggests that Foxhall doubts whether the next book will be completed, so there is no need for George to reassure Foxhall, **A**. **C** is Opposite; George treasures Foxhall’s “faith and confidence” (lines 57–58). **D** is Opposite; George says, “There are better ways to write a book” (line 74), so he is unlikely to feel that his approach is superior to other approaches.
4. **G** Though George had “expected convulsions of the earth” in response to his story, the passage says that “nothing happened. A few of his friends mentioned it, but that was all” (lines 77–80). The best description of this lackluster response is “tepid,” or

lukewarm, **G**. The few friends who mention the story give neutral responses, so **F** is too negative. **H** and **J** are Opposite answers.

5. **D** Lines 54–60 discuss the very positive impact that Fox had on George. The text says that “the editor’s faith and confidence, coming as it had come at a time when George had given up all hope, restored his self-respect and charged him with energy for new work” (line 57–60). This idea is best summarized by **D**. **B** is a Misused Detail. In the third paragraph, line 21 explains that Foxhall had “suggestions for cutting and revising the manuscript.” Nothing suggests that these revisions were “extensive,” or that revisions were the reason Foxhall’s belief in George’s ability was important. Nothing in the passage directly supports **A** or **C**.
6. **G** The last paragraph (lines 76–86) describes what happened when *Rodney’s Magazine* came out with George’s story. After an initial letdown (lines 79–80), George decided that “people couldn’t really tell much about a new author from a short piece in a magazine...He could afford to wait a little longer for the fame which he was certain would soon be his” (lines 81–86). Therefore, **G** best answers the question.
7. **A** “Fame, at last, was knocking at his door and wooing him with her sweet blandishments” (lines 15–16). Typically, a suitor woos the object of his desire with gifts. In the previous paragraph, we learned that George had just received a check for \$500 as “an advance against his royalties” (lines 12–13) on a book he had written. This money could be considered fame’s gift. The word “courting” in **A** best captures this concept of wooing.
8. **H** The source of George’s trembling (line 30) is explained in subsequent sentences. “He loathed the thought of giving pain to anyone...But...Some people might recognize themselves and be offended” (lines 32–37). **F** is Opposite. The passage indicates that George has nothing but positive feelings toward Foxhall. Nothing suggests that George is planning to return to his home town to meet the people he wrote about, **G**. In fact, George’s fear of hurting the feelings of his old neighbors and acquaintances suggests that he would not relish the idea of returning to his home town to discuss his novel. **J** is Out of Scope. The passage does not express George’s concern about the critics. Rather, he seems very confident that his novel will be received well.
9. **B** To select the correct choice for this difficult question, you must analyze George’s behavior. George is very proud of his work. This can be inferred from several parts of the passage. Lines 27–28 are worded to convey his pride of authorship: “He had distilled every line of it out of his own experiences of life.” His extremely high (and unrealistic) expectations about the effect of his story appearing in *Rodney’s Magazine* (lines 77–80) also convey George’s belief that his work was very important. George did have concerns, though. The fourth paragraph (lines 25–42) discusses his worry that his fictional characterizations might offend the real people on which they were based. This pride mixed with concern is expressed in **B**. Nothing suggests that George is bitter, **A**, or angry, **D**. In light of George’s expectation that publication of his story would cause “convulsions of the earth,” he is certainly not modest, **C**.

10. **F** When George is described early in this passage, the word “dazed” is used (line 6). In lines 2–3 the reader learns that George has come “to his senses somewhere in the wilds of the Upper Bronx.” In lines 11–13 the reader learns that the paper George was happily looking at earlier is a \$500 royalty check. Therefore, you can infer that George has been wandering around dazed after learning that his book has been accepted for publication—**F**. **J** might have been tempting, but it’s the fact that his book will be published, not the money he’ll earn from it, that makes George dazed and happy. **G** is a Misused Detail. George’s habit of walking off nervous tension is mentioned in the sixth paragraph, not the first.

Passage II

This well-organized Social Science passage is about Mussolini’s rise to power in postwar Italy. A summary: the first two paragraphs discuss the territorial and economic problems that set the stage for Mussolini’s rise to power. The third paragraph outlines the events that resulted in Mussolini’s dictatorship. The fourth and fifth paragraphs explore Mussolini’s economic and political philosophy.

11. **A** Lines 5–9 talk about the lands that Italy obtained and hoped to obtain as it emerged from World War I. The author explains that in spite of being given land in Austria-Hungary, the Italians were disappointed not to be awarded “further acquisitions east of the Adriatic and in Asia and Africa.” “Grandiose ambitions,” therefore, refers to the desire for more land. World War I had already concluded, with Italy on the winning side, so it would not make sense for Italy to have “grandiose ambitions” of victory at the end of World War I, **B**. **C** is a Misused Detail; the issue of unemployed veterans is not discussed until the second paragraph.
12. **J** There is evidence in this passage to support all three of the statements. Lines 25–29 explain the reaction of landlords, factory owners, small-business and professional people to the economic unrest in Italy following the war—they “longed for vigorous leadership and a strong government.” In other words, they desired the stability that Mussolini’s regime seemed to offer, as Statement I suggests. Statement II also contributed to Mussolini’s rise to power. Lines 48–50 explain that he seized “control of the faction-paralyzed government” in Rome. Statement III also was important. Lines 44–47 explain that Mussolini’s veterans terrorized “the leaderless radical workers and their liberal supporters.” The answer is **J**, which states that Statements I, II and III were all important factors in Mussolini’s rise to power.
13. **D** The authors describe the rise of fascism in paragraphs 1–3. Paragraph I explains how the peace settlements following World War I resulted in “severe blows to Italian national pride” because Italy was awarded less land than it hoped for. This is discussed as the first of many problems that laid the groundwork for a new nationalistic, fascist leader like Mussolini to rise to power. So the way that the passage supports the theory (that fascism arises after periods of diminished national pride) is best stated by **D**.
14. **G** From the text, it seems that Mussolini had organized unemployed veterans into a political action group (lines 36–38) before the end of the labor disturbances in 1921. Mussolini eventually sent his veterans to beat up the radical workers and

their supporters (lines 44–47) in an effort to get the support of the capitalists and the landlords (lines 41–42). However, he waited to do so until it became clear that the workers would lose (lines 40–42). The reason he waited to commit his group of veterans was that he wanted to join up with the side that would ultimately be victorious. This certainly sounds opportunistic. Nothing supports the assertion in **F** that Mussolini wanted the workers to win. **H** is Out of Scope. The importance of the radical’s challenge is not discussed. **J** is a Distortion; Mussolini was a pacifist *before* World War I, not after (lines 34–35).

15. **B** The correct answer should convey the idea that Mussolini had absolute power over the citizens of Italy. **B**—abolishing all non-Fascist unions—is the only choice that conveys Mussolini’s control over the lives of individuals. **A** is too general; leaders can be “dynamic” without being dictators. **C** refers to an event that took place before Mussolini’s government came to power. **D** does not show that Mussolini’s government was a dictatorship. Instead, it presents two positives that Mussolini achieved.
16. **H** Lines 79–84 describe the role of nationalism in Mussolini’s Italy. The author explains that Mussolini used the “energizing quality” of militant nationalism for political purposes—to attract support for his new regime. **H** paraphrases this idea best. The last paragraph compares Italy to the “police state” of Germany, but nothing suggests that Mussolini was trying to protect Italy from German aggression, **F**. Mussolini failed to bring prosperity to Italy, so **G** does not work. **J** is Opposite; Mussolini used nationalism to gain power.
17. **D** One aspect of Mussolini’s rise that comes across in paragraphs 2 through 4 is his hard-line policy towards labor. Lines 17–19 indicate that Italian workers were conducting sit-down factory strikes in 1920. By 1926 these workers were forbidden to strike and were subject to compulsory arbitration (lines 65–68). **D** best states this crack-down on workers’ rights. **A** is Opposite; workers’ income did not rise. The passage states that “there was probably a small decline in per capita income” under Mussolini (lines 73–75). **B** is also Opposite, for the passage explains that “labor’s share of economic production was small” (lines 77–78). **C** is a Distortion. Except for unions controlled by the Fascist party, workers’ collective action was totally, not increasingly, disallowed.
18. **H** The fourth paragraph (lines 61–78) talks about Italy’s economic life under Mussolini’s corporate state. Lines 73–78 describe the economic effects of Mussolini’s policies—even though he balanced Italy’s budget and stabilized its currency, taxes reached record levels, leading to a decline in per capita income. **H** is the correct answer here—excessively high taxation disrupted economic rebuilding. Labor disturbances were suppressed by the Fascist government, so **F** is incorrect. Eliminate **G** because the Fascist government *was* the corporate state (lines 71–73). **J** is Opposite; line 76 explains that the budget was balanced under Mussolini.
19. **D** Lines 68–71 describe the corporate state as a “planned economy [that] was set up to modernize, coordinate, and increase Italy’s production of both industrial and agricultural goods.” Choice **D** best paraphrases this information.
20. **F** In lines 80–81, the authors contend that fascism was nationalism “run wild.” The subsequent quotes are intended to provide an illustration of those nationalistic ideas.

Passage III

This rather confusing Humanities passage deals with the connection between two “grand ideas”: human self-fulfillment and freedom. Here’s a summary of the passage: The first and second paragraphs provide some historical perspective about the ideal of human self-fulfillment. The third paragraph explains what the authors have in mind when they speak of human self-fulfillment. The fourth paragraph mentions that self-fulfillment has led to scientific and technical progress, which, in turn, has made individual self-fulfillment easier. The fifth paragraph discusses one thinker, Calvin, who did not believe in human self-fulfillment, and the consequences of this attitude. The sixth and seventh paragraphs tie together the ideals of human self-fulfillment and freedom, saying that the former is not possible without the latter, and introduce some historical examples to support this thesis. Finally, the eighth paragraph mentions some thinkers who distorted the idea of freedom, and the importance of freedom of thought and speech.

21. **C** The passage talks about self-fulfillment and freedom and what these great ideas have inspired. Paragraph five (lines 49–58) begins with the sentence: “Only rarely has a thinker...gone back from the ideal of human potential and fulfillment.” The next sentence, which introduces Calvin, says “Calvin was perhaps such a thinker who went back and believed...that man [is] incapable of any worthwhile development” (lines 51–54). Calvin, therefore, is a counterexample offered to show that not everyone over the past 500 years has believed in the ideals of self-fulfillment and human potential. **A** is a Distortion. The period of the Middle Ages is a detail in the paragraph, not the topic of the paragraph. **B** is Opposite, as the paragraph presents a negative view of Calvin. **D** is incorrect because Calvin is not an example of the connection between human self-fulfillment and scientific progress, the topic of the previous paragraph.
22. **G** Reread the lines surrounding the word “elucidated” in line 25 to get the tested word’s meaning. The sentence says that some of man’s special gifts are “elucidated for us explicitly by science” (lines 25–26). “Explicitly” means “clearly stated,” so “elucidated” must mean something similar. Only “revealed” in **G** fits. Science itself does not have the power to decide (**F**), invent (**H**), or judge (**J**) man’s special gifts.
23. **B** Lines 60–62 explain that “human fulfillment is unattainable without freedom, so that these two main ideas are linked together.” The sixth paragraph begins talking about freedom by describing it as “the second of the two grand formative ideas.” This follows the first five paragraphs, which discuss fulfillment. This information supports **B** as the correct answer. **A** is Opposite. The passage states that freedom is necessary for human fulfillment, so the two traditions cannot be “mutually exclusive.” Nothing suggests that these traditions were viewed as unimportant until recently, so **C** is incorrect. In **D**, freedom of thought and speech are both part of the “grand formative idea” of freedom.
24. **H** Lines 41–43 explain that “The purpose and the effect [of devices and gadgets] has been to liberate men from the exhausting drudgeries of earning their living.” **H** best paraphrases these ideas. **A** is Opposite. In lines 34–41, the passage suggests that technological progress has not been “illusory.” With the use of the word “all,” **G** is Extreme; it is unreasonable to state that *all* inventors reach a level of self-fulfillment. **J** is also Opposite; the passage discusses these “devices and gadgets” in a positive light.

25. **C** Lines 44–48 indicate that before the development of all sorts of work-saving devices and gadgets, princes alone had “the ease and leisure to find the best in themselves.” **A** is a Distortion; it refers to the totalitarian state that Calvin organized, discussed in lines 54–56. **B** is Out of Scope; the passage is not concerned about wealth. The clause “which was once the monopoly of princes” describes “the ease and leisure to find the best in themselves,” not the inventions, **D**.
26. **H** Lines 82–84 state that those who advocate freedom “can at times delude themselves that obedience to tyranny is a form of freedom.” This is best expressed by **H**. **F** is Extreme; the word “must” makes this answer incorrect. **G** is Opposite; the passage celebrates freedom, so it would not suggest that freedom is a “delusion.” **J** is a Distortion. The paragraph suggests that it is certain advocates of freedom, not the concept of freedom itself, who are “seriously flawed.”
27. **B** You can find the answer to this question by a process of elimination. Remember, you’re looking for the choice that the authors would *reject*. **A** is supported by the discussion in paragraph four (lines 33–48): People are able to find the best in themselves when they have more leisure time. **C** is supported by paragraph one (lines 1–12). The authors mention various people in diverse professions in various eras who have all praised the development of the individual. **D** is supported in lines 56–58, where the author contends that men develop by having something in them “which is personal and creative.” This leaves **B**; nowhere in the text do the authors say or imply that “self-fulfillment is a praiseworthy but unreachable goal.” Indeed, the authors seem to believe that self-fulfillment is entirely possible.
28. **F** Lines 60–61 say that freedom is necessary for human fulfillment. Lines 33–34 talk about self-fulfillment inspiring progress. The final paragraph talks about the importance of freedom of thought and speech. Thus, the authors would undoubtedly contend that freedom is necessary for a society to make progress. The use of the word “only” makes **G** Extreme. **H** is Out of Scope; the passage is concerned with self-fulfillment and freedom, but it does not focus on the establishment of world peace. **J** is a Distortion; lines 76–81 refer to different types of revolutions, but nothing suggests that revolutions are the *quickest* way to attain freedom.
29. **A** Lines 82–86 talk about the delusion that “ensnared” Luther, Rousseau, Hegel and Marx. According to the authors, these men confused freedom with obedience to tyranny. **A**, therefore, is the answer. **B** is Opposite. It is contradicted by the following sentence, which states that “there is indeed no unlimited freedom.” **C** is Opposite. According to the passage, these four men thought of obedience to tyranny as a type of freedom. It is therefore unlikely that they supported the right to dissent, or disagree with authority. **D** is also Opposite. The four men clearly found some aspects of tyranny acceptable.
30. **J** The authors make it clear throughout the passage that they feel freedom is a valuable ideal. In the seventh paragraph, they suggest that revolutions have often made societies more free. Considering this, **J** is the best answer. The other choices all present a negative view of revolutions.

Passage IV

The title of this wide-ranging science passage could be: “Everything You Ever Wanted To Know About Tornadoes.” The first paragraph mentions the destructive power of tornado winds. The second, third, fourth, and fifth paragraphs talk about the formation, structure and physical appearance of tornadoes. The sixth paragraph discusses where tornadoes are most likely to form, a place called “tornado alley.” The seventh and eighth paragraphs explain when and under what conditions tornadoes are likely to emerge. The ninth paragraph talks about the unpredictable movements of tornadoes and why this makes them difficult to track and study.

31. **D** The term “vortexes of air” appears in line 11. The text immediately following the use of this term discusses the rotation of tornadoes, mentioning that air streams into the base and then spirals upward (lines 12–20).
32. **J** Lines 5–8 explain that the wind speeds of tornadoes have been determined “based [in part] on analysis of motion pictures.” This is the only detail linked to examining motion pictures.
33. **D** Tornado rotation is discussed in lines 12–15. The direction of rotation is based on the hemisphere in which the tornado occurs. **A** is a Misused Detail. Hurricanes and thunderstorms are both mentioned at the beginning of the second paragraph, but these weather systems are not related to the direction of a tornado’s rotation. **B** is also a Misused Detail. The difference in pressure in the core of a tornado and the surrounding atmosphere is the cause of the spiral, but this difference does not affect the *direction* of rotation.
34. **G** Lines 81–83 in the last paragraph describe “the unpredictable nature of tornadoes, which often hop about from place to place.” Since scientists operate the TOTO device by placing it “in the path of the tornado,” you can infer that the unpredictable movements of tornadoes might make TOTO hard to use. None of the other choices is supported by details in the passage.
35. **A** Paragraphs seven and eight (lines 60–75) discuss the conditions required for tornadoes to form. Lines 62–67 explain the need for strong updrafts. Lines 69–71 explain the effect of wind shear on the initiation of tornado rotation. These two factors are listed in **A**. Movement of the funnel toward the ground, **B**, takes place *after* rotation begins (lines 71–72). For **C**, movement of air up the funnel happens later, when the tornado reaches the ground (lines 73–75). **D** is Opposite; lines 63–65 state that “a highly unstable distribution of temperature and humidity in the atmosphere” is a condition that may lead to tornadoes.
36. **H** Lines 69–71 explain what happens during wind shear—“wind speed increases with height and veers from southeast to west.” **H** accurately rewords this information.
37. **A** Paragraphs seven and eight (lines 60–75) discuss the factors that determine the formation of tornadoes. These factors are based on weather conditions in the sky. You can infer from this that it would be possible to predict the formation of tornadoes if these atmospheric conditions were known. **B** is a Distortion. “Tornado alley” is accurately identified in the sixth paragraph. **C** is Opposite. The movement of cold fronts, not warm fronts, is related to tornado formation (lines 64–65). **D** is Out of Scope. The passage does not mention using TOTO’s readings to make predictions about tornadoes.

38. **F** This question requires a careful reading of the text. At the end of paragraph three, the author describes the formation of funnel clouds. We're told that a pressure drop in the core of the cloud causes air to flow in, where it hits an area of lower pressure, and causes water vapor to condense into droplets. The term "condensation cloud" is never used to describe a funnel cloud in paragraph three. However, the terms are synonymous. This becomes clear when you read the beginning of paragraph four: "Sometimes, no condensation cloud forms..." (line 33). **F**, therefore, accurately describes the formation of condensation clouds. **G** is a Distortion. A condensation cloud may form over a body of water, but it may also form over land. With the words "rushes" and "immediately," **H** is Extreme. **J** is a Misused Detail; this type of tornado is described in the following paragraph.
39. **C** Paragraph three (lines 25–32) begins "The vortex frequently becomes visible" (line 25). Paragraph four begins "Sometimes...the only way a tornado can reveal itself" (lines 30-31). So both paragraphs address what makes a tornado visible. The answer is **C**. The formation of the funnel, **A**, is described in paragraphs seven and eight. The second paragraph discusses condensation clouds, **B**, but the third paragraph does not. The fourth paragraph discusses tornadoes' variety of shapes, colors, and sizes, **D**.
40. **J** Line 76 states that tornadoes "are steered by the jet stream." Choice **J** is the answer. Based on information in the passage choices **F**, **G**, and **H** are not true of *all* tornadoes.

SCIENCE

Passage I

The first passage mostly requires an ability to read the two given graphs, each of which traces the rate of decay in a different radioactive isotope. The y -axis of each graph represents the proportion of remaining (undecayed) nuclei to original nuclei, while the x -axis of each represents time. Notice, though, that the first graph runs from 0 days to just 6 days, while the second graph runs from 0 days to 180 days. That's a big difference, indicating that the second isotope, ${}^{91}_{39}\text{Y}$, decays at a much slower rate.

- A** In the introduction to the passage, the “half life” of an isotope is defined as the amount of time needed for one-half of the isotope’s nuclei to decay. To figure out the half-life of ${}^{90}_{39}\text{Y}$ look at the first graph. When half of the nuclei have decayed, the N/N_0 ratio would be 0.5 (since the original ratio was 1.0). Draw a horizontal line across the graph at the level of 0.5. The horizontal line will intersect the curve at a specific point; from this point, draw a vertical line down to the x -axis. The vertical line intersects the x -axis somewhere between 2.5 and 3 days, which means that the amount of time it takes for half of the nuclei to decay is between 2.5 and 3 days. **A** is the only answer that falls in this range.
- G** Since N_0 is the same for both samples, you can use the two graphs to figure out the ratio of ${}^{90}_{39}\text{Y}$ to ${}^{91}_{39}\text{Y}$ after 2.7 days. You know from having done the previous question that after 2.7 days about half of ${}^{90}_{39}\text{Y}$ remains. Take a look at the graph for ${}^{91}_{39}\text{Y}$. After 2.7 days, hardly any will have decayed at all. Therefore, the ratio of ${}^{90}_{39}\text{Y}$ to ${}^{91}_{39}\text{Y}$ will be 0.5 to 1, or 1 to 2 (**G**).
- C** This question may seem convoluted, but it just means that one isotope (${}^{90}_{39}\text{Y}$) will accumulate in the gastrointestinal tract while the other (${}^{91}_{39}\text{Y}$) will accumulate in the bones. The half-lives of the isotopes will remain the same, so after three days, a little over half of the original ${}^{90}_{39}\text{Y}$ will be left (in the gastro tract), but just about all of the ${}^{91}_{39}\text{Y}$ will be left (in the bones). With this information in hand, you just have to examine the choices. **A** is incorrect because ${}^{91}_{39}\text{Y}$ accumulates in the bones, not the gastrointestinal tract. **B** is incorrect since ${}^{90}_{39}\text{Y}$ accumulates in the gastrointestinal tract, not in the bones. **C** is correct because, as we said, about half of the nuclei of ${}^{90}_{39}\text{Y}$ decay after 3 days, so about half of the inhaled amount will be in the gastrointestinal tract after 3 days. **D** is incorrect because almost all of the ${}^{91}_{39}\text{Y}$ will be left in the bones.
- G** After one half-life has passed, half of the original 1,000 nuclei will have decayed, leaving 500. After the second half-life has passed, half of the 500 will be gone, leaving 250. When the third half-life has passed, half of the 250 will have decayed, leaving 125 (**G**).
- D** Statement I is true: ${}^{90}_{39}\text{Y}$ is less stable than ${}^{91}_{39}\text{Y}$ because ${}^{90}_{39}\text{Y}$ decays more rapidly (remember that the x -axes are scaled differently). This rules out **B**. Statement II is wrong because virtually no ${}^{90}_{39}\text{Y}$ would remain after 116 days. **C** can thus also be eliminated. Statement III is obviously true, given the fact that the isotopes decay in this manner, making **D** the correct answer.

Passage II

This passage involves three tennis-training experiments; the results are summarized in Tables 1, 2, and 3. Look for patterns in the data. Notice, for instance, that in Table 1 the greatest increases in serving speed were obtained when right-handed players watched a right-handed coach and when left-handed players watched a left-handed coach. Similarly, in Table 2, physical guidance caused higher increases in *both* serving speed and serving accuracy.

6. **J** In Experiment 1, left-handed players watching a video of a left-handed coach improved their service speed by 8 mph. Since right-handed players in Experiment 3 (the one asked about here) improved even more with a combination of videos and physical instruction than with videos alone, left-handed players will probably improve at least as much in Experiment 3 as they did in Experiment 1. This makes **J** the right answer. Eliminate **F** because service accuracy is measured in Experiment 2, not Experiment 3. Table 3 shows that right-handed players who received verbal coaching increased their serve speed *more* than players who watched a video did, so it's reasonable to predict that the same would hold true for left-handed players. This eliminates **H**.
7. **A** **A** is the only conclusion that cannot be supported by the data of Experiment 1. Imitating someone with opposite handedness does not always cause a deterioration of skills: right-handed players actually improved somewhat when they watched videos of left-handed coaches. **B** is supported by the average improvement of left-handed players observing left-handed coaches. On average, these players increased their service speed by 8 mph, while right-handed players observing right-handed coaches only increased their service speed by an average of 5 mph. **C** is supported by the increased serve speed of both right-handed and left-handed players who observed similar-handed coaches. **D** is supported by the average improvement of right-handed players observing left-handed coaches. These players had an average service speed increase of 2 mph, while left-handed players watching right-handed coaches had an average speed *decrease* of 1 mph.
8. **H** Experiment 2 was designed to determine whether right-handed players improve more with videos alone or with videos and physical guidance combined. The players given a combination of videos and guidance clearly showed greater improvement in both service speed and service accuracy as compared to those who just used videos. This supports the generalization **H** that physical guidance by a coach improves both speed and accuracy of service for right-handed players. There is nothing in Experiment 2 to support any conclusion whatsoever about left-handed players, since none were involved in the experiment. This eliminates **G** and **J**. Experiment 3, not Experiment 2, studies the effect of verbal coaching, so **F** is out.
9. **D** In Experiments 1 and 2, right-handed players who watched a right-handed coach on video improved 5 mph in speed. According to Experiment 2, right-handed players who watched videos and received physical guidance improved by 9 mph (4 mph more than with videos alone). Guidance appears to add about 4 mph of improvement in speed. Since left-handers improve by 8 mph with videos alone (Experiment 1), adding physical guidance to their training should make their overall improvement in service speed about 12 mph, (**D**).

10. **F** Experiment 1 investigated the effect of watching videos of left- or right-handed coaches on the service speed of left- or right-handed players. The results support the conclusion in **F**. Players watching videos of coaches with the same handedness improved their speeds by 5 mph (right-handers) and 8 mph (left-handers), whereas players watching videos of coaches with the opposite handedness improved their speed only a little (2 mph for right-handers) or not at all (for left-handers). Tennis players seem to improve less when observing coaches whose handedness is opposite to their own. The experiment does not address the frequency of right-handed players to left-handed coaches, or vice-versa (**G**). Right-handed players were able to increase their service speed after watching left-handed coaches, but on average left-handed players were not able to do the same after watching right-handed coaches. This suggests that left-handed, not right-handed, coaches would be better models for all tennis players (**H**). Experiment 1 only examines visual stimulus; Experiment 2 adds the element of physical guidance (**J**).
11. **C** **C** is the best procedure to determine the effects of verbal instruction on average service speed because it measures the amount of improvement that is due solely to verbal instruction. In addition, all of the players receive the exact same verbal instruction, since the instructions have been recorded (personal verbal instruction may vary considerably). **A**'s procedure is not optimal because Experiment 3 involves the factors of videos and physical guidance as well as verbal instruction. **D**'s procedure does not measure the players' service speed before instruction, so there is no way to gauge improvement.

Passage III

This passage hinges on the Hertzsprung-Russell diagram, which plots individual stars in terms of their absolute magnitude (brightness) on the y -axis, and their spectral class (which is a measure of color/temperature) on the x -axis. What does this mean? It means that stars that are high on the chart are brighter than those that are low on the chart. The greater the number for absolute magnitude is, the dimmer the star is. It also means that stars that are on the right side of the chart are M class (i.e. the reddest and coolest), while those toward the left side of the chart are bluer and warmer.

12. **F** Nearly all of the stars on the diagram fall in the spectral class M, so **F** is correct.
13. **B** The text explains that the spectral classes of stars on the diagram go from warmest on the left (O) to coolest on the right (M). Therefore, any stars in a spectral class to the left of G, the Sun's spectral class, are warmer than the Sun. Of the three named stars, only two are to the left of the Sun: Sirius and Altair.
14. **G** Most of the stars on the diagram fall below the absolute magnitude of 6; that is, they would not be visible to the naked eye from a distance of 10 parsecs. Remember that 1.0 is the maximum brightness. Stars with higher numbers for absolute magnitude are dimmer.

15. **A** A quick review: Moving across the spectral classes from left to right, the stars go from warm to cool and from blue to red. Statement I is correct because α -Centauri is to the right of Sirius. This means that you can eliminate **B** and **D**, which do not contain Statement I. Statement II is incorrect because the Sun is to the right of Altair on the diagram, indicating that the Sun is cooler. This eliminates **C**. **A** is the correct answer, and you don't even have to look at Statement III (though if you do, you'll find that it's incorrect, since the Sun is lower on the diagram than is Procyon).
16. **J** It's impossible to know what the diagram of stars within 10 parsecs of the Sun would look like, even though you have the graph of the stars within 5 parsecs of the Sun in front of you. It may be tempting to assume that by doubling the distance the number of stars would be doubled as well (**F**). However, when you double the distance from the Sun you more than double the volume of space; there may be, for all you know, many more than double the original number of stars on the new diagram. There is similarly no basis on which to judge the absolute magnitude (**G**) or the spectral class of the additional stars (**H**).

Passage IV

This passage is based around three different experiments, all designed to determine what conditions favor Product A and what conditions favor Product B when a particular cobalt complex reacts with sodium nitrite. Determine what factor is varied in each experiment. In Experiment 1, the varied factor is acidity (one solution is made acidic while the other is made basic). In Experiment 2, the varied factor is heat. And in Experiment 3, the varied factor is the citrate ion.

17. **C** To answer this question, look at the conditions in which Product B was formed. Solution 1 in Experiment 1 and Solution 1 in Experiment 2 both yielded Product B. These solutions were both acidic, so the correct answer must be either **B** or **C**. The next step is to determine whether Product B was formed when citrate ion was added. The results of Experiment 3 show that there is no yield of Product B with added citrate ion, so **C** is the correct answer.
18. **F** **F** is the conclusion that is not supported by the experimental results. As you know from the previous question, Product B is not formed when citrate ion is added to the solution. Since it does form in the same solution if no citrate ion is added (Experiment 2), the presence of citrate ion does indeed affect the formation of Product B. All of the other choices are legitimate conclusions based on the experimental data. Product B forms in both Experiment 1 and Experiment 2, which involves heating the solution. Therefore, the results do support the conclusion that the formation of Product B is unaffected by heating the solution, **G**. In Experiment 3, Product A is formed with the addition of citrate ion, but Product B is not. This demonstrates that Products A and B form under different conditions, **H**. Product A is not formed in Experiment 1, but it is formed in Experiment 2 when the solution is heated. This supports the conclusion that the formation of Product A is affected by heat, **J**.

19. **B** Varying the pH (**B**) may well show that different degrees of acidity or basicity will have a marked impact on product formation. Heating the solutions (**C**) has been tried already, and freezing the solutions (**D**) should stop the reactions altogether. Varying the concentration (**A**), meanwhile, won't alter the ability of the known compound to react.
20. **F** When a question is based on only part of the data, make sure that the answer you choose is based only on the relevant data. In Experiment 2 it was found that when the solutions were heated to 110° C, both Product A and Product B were formed. Therefore, **F** is supported by the results of Experiment 2. All of the other choices are hypotheses that could only be supported or refuted using the results of Experiments 1 and 3 along with the results of Experiment 2.
21. **B** This question asks you to identify the condition or conditions that are held constant through all three experiments. The temperature was varied, ruling out **A**, and the amount of citrate ion was not the same in all three experiments, so you can eliminate **C** and **D**. Only **B** remains. You are never told the specific quantity of cobalt complex used, but you can assume it was the same in all three experiments since the solutions of Experiments 2 and 3 were prepared just as they were in Experiment 1.
22. **J** Product B is formed in Solution 1 when heated, but it is not formed when citrate ion is added prior to heating (**J**). This is evidence to support the hypothesis that Product B may react to form other more readily dissolved compounds in the presence of certain ions. None of the other choices involves the presence of any type of ion.

Passage V

This Conflicting Viewpoints passage offers two different opinions on the classification of the giant panda. Examine the scientists' positions carefully. Scientist 1 votes for a raccoon classification, citing as evidence anatomical similarities, comparable size among males and females, similar noises and eye-covering behavior, and certain chromosomal similarities. Scientist 2 votes for a bear classification, citing evidence such as DNA similarities, similar body proportions, and aggressive behavior.

23. **A** This question asks you to determine which of the four choices would provide additional support for the viewpoint expressed by Scientist 2. Similarities between the blood proteins of giant pandas and several bear species (**A**) would certainly indicate that pandas should be classified as bears, which is Scientist 2's viewpoint. Watch out for choices that support the other position in questions like this: **B** and **D**, for instance, are wrong because they support Scientist 1's argument that pandas should be classified as raccoons, not bears. **C**, meanwhile, is inconclusive.
24. **J** Both scientists make their arguments by comparing the physical, behavioral, and genetic characteristics of the giant panda to the characteristics of either the bear or the raccoon family. Therefore, both scientists would agree that animals should be classified into families based on these criteria. Neither scientist suggests that pandas should be classified in a separate family (**F**). Scientist 1 argues that the giant panda is closely related to the raccoon, so **G** is not a point of agreement. Scientist 1 also describes ways in which the behaviors of raccoons and giant pandas differ from the behavior of bears, eliminating **H**.

25. **C** You know from Scientist I's statement that *Ursidae* (bears) have 36 pairs of chromosomes, so Statement I would support the classification of the mammal as a bear. This narrows the possible choices down to **A** and **C**. You also know from Scientist 1 that male bears can be twice the size of female bears, whereas male and female raccoons are the same size. Statement III, therefore, also supports the classification of the mammal as a bear. **C** is the right choice, and you don't even have to look at Statement II (which would argue against a classification as a bear).
26. **G** Scientist 1 explains that both raccoons and pandas cover their eyes with their front paws when intimidated. Scientist 1 mentions that like raccoons, pandas have a greeting that consists of bleats and barks, **F**. However, the scientist does not connect bleating and barking with a panda's behavior when frightened, as specified in the question. Scientist 2, not Scientist 1, discusses the panda's aggressive behavior of swatting with its forepaws (**H**) and tendency to walk pigeon-toed (**J**).
27. **D** Scientist 2 mentions that research has shown that the giant panda's DNA is far more similar to a bear's DNA than to that of any other family. **D** paraphrases this idea. Scientist 1, not Scientist 2, mentions the lack of size disparity between male and female pandas, **A**. **B** is a Distortion. Scientist 2 discusses the similar aggressive behaviors of bears and giant pandas; Scientist 1 discusses the similar greeting behaviors of raccoons and giant pandas. While it may be true that both bears and giant pandas are herbivorous, **C**, Scientist 2 does not refer to any such similarity.
28. **F** If giant pandas and raccoons both had glandular scent areas, this evidence would support the viewpoint of Scientist 1, who thinks that giant pandas are closely related to raccoons. **G** is Opposite. Scientist 2 argues that giant pandas should be classified as bears, but the evidence given in **G** that bears do *not* have glandular scent areas indicates a major difference between pandas and bears. It is unclear how either a raccoon's poor sense of smell, **H**, or a bear's behavior of urinating to lay down its scent, **J**, is directly related to the existence of glandular scent areas.
29. **B** Scientist 2 contends that giant pandas display the same aggressive behavior as bears do: they both swat and try to grab adversaries with their forepaws. Only **B** is a counterargument to this claim. An aggressive panda's behavior is like a raccoon's behavior, not a bear's, in that the panda bobs its head up and down like a raccoon. **A** and **C** are examples that Scientist 2 uses to argue that giant pandas should be classified as bears, so Scientist 1 could not use these same examples to counter Scientist 2's claim. The number of chromosomes for a giant panda, **D**, is not connected to Scientist 2's claim that giant pandas and bears display similar behaviors.

Passage VI

This passage consists almost exclusively of a complex bar graph recording primary energy sources at various times in history—namely, 1850, 1900, 1950, and 1985. Notice the changing proportions. Fuel wood, which was an extremely important source of energy in 1850, virtually disappeared by 1950 and 1985. Petroleum, on the other hand, which barely registers on the 1900 graph (and not at all on the 1850 graph), has by 1985 become the dominant source of energy.

30. **G** Petroleum first appears on the graph as an energy source in 1900 and accounts for an increasingly greater percentage of total energy consumption in 1950 and 1985, judging by the increasing size of the petroleum portion of each bar. The portion of each bar representing coal, on the other hand, decreases from 1900 to 1950 and again from 1950 to 1985.
31. **C** Focus on the coal portion of each bar. Coal was an energy source in 1850, so the ability to utilize it was developed well before the 1900s—**A** is incorrect. The graph tells you nothing about mechanized mining techniques, so **B** is out, too. To choose between **C** and **D**, you have to determine if the use of coal predated natural gas or vice versa. Coal first appears on the graph in 1850, while natural gas first appears on the graph in 1900. Therefore, the use of coal must have predated the use of natural gas, making **C** the correct choice.
32. **F** The portion of the bar that includes farm animals as an energy source is about 30% of the total in 1850, but it gets smaller in 1900 and 1950 until it disappears altogether by 1985. **F** is the correct answer.
33. **D** Compare the bars for 1900 and 1950. **A** is wrong because the number of major energy sources was the same (six) in 1900 as in 1950. **B** is out for reasons discussed in the previous question—work animals became less important, not more important. Since coal, not natural gas, has the largest portion of the bar for 1950 (as it does for 1900), **D** is the correct answer.
34. **F** Statement I is supported by the graph because nuclear power, natural gas, and petroleum were all energy sources in 1985 that did not exist in 1850. The graph does not support Statements II or III, however. Coal was not the largest source of energy in 1850 or 1985, which rules out II. There is no way to know from the graph whether there is indeed a short supply of petroleum, so III is out. This makes **F** the correct answer.

Passage VII

This Research Summary passage presents information about two experiments investigating the regenerative powers of sea stars. In Experiment 1, scientists removed different portions of sea stars and then observed how the remaining sea star bodies regenerated. Table 1 reports the results of Experiment 1. The data here suggest that it takes sea stars longer to fully recover from large amputations than from small amputations. In Experiment 2, amputated segments of sea stars were observed for regenerative powers. Table 2 reports the results of Experiment 2. The data in this table indicate that smaller amputated body parts are less likely to regenerate into a full sea star than are larger amputated body parts.

35. **B** According to the bottom row of Table 1, 12 of the sea stars that had two arms and 1/3 of their body removed were fully regenerated after six months. Since each group started out with 25 sea stars, 12 out of 25 sea stars, or roughly 50%, regenerated two entire arms and part of the central body after six months. **B** is correct.

36. **J** In Experiment 2 certain body portions of *Asterias rubens* were allowed to regenerate. The number of whole sea stars was recorded at 3-month intervals over the course of a year. According to the table of the results, no sea star was regenerated when only the outer arm was present. This would support the conclusion in **J**—that regeneration is dependent upon the existence of a portion of the central body. The conclusion in **H**, that some sea stars die from confinement in lab tanks, is *not* supported by the results of Experiment 2, since no healthy sea stars were studied. In order to conclude that sea stars die from confinement in lab tanks and as a result of amputating portions of their bodies, the scientists would have to study sea stars with intact bodies as they did in Experiment 1. The question refers to Experiment 2 only, so **H** is incorrect. Sea stars with portions removed are studied in Experiment 1, not Experiment 2, so **G** is incorrect.
37. **C** There is no mention of water depth in the passage, the experiments, or the results, so Statement I is out. Eliminate **A** and **D** since both include Statement I. Statement II is supported by the experimental results that show sea stars can regenerate limbs they have lost. How they lose limbs doesn't matter. Since Statement II is true, **C** must be the answer. Although it would not be necessary at this point to verify that Statement III is true, the data indicate that if a body part that includes some of the central body is broken off from a sea star, the part will regenerate to become an entirely new, separate sea star. This would increase the population of sea stars, so Statement III is correct.
38. **F** Look back at Table 1. The sea stars in the first group were whole throughout the experiment—nothing was amputated. The group acted as a control for the experiment in that the effect of the artificial environment could be measured apart from the effect of amputation. Three intact sea stars in group 1 died solely from being kept in lab tanks. If this group had not been included in the experiment, the deaths of sea stars in the other groups would have been attributed to the effect of amputation. **F** is the correct answer. All five groups of sea stars in the first experiment were kept in “laboratory tanks simulating the natural environment” of sea stars. Because the environment of the first group of sea stars was the same as the environment of the other groups of sea stars, **J** is incorrect.
39. **D** As the question indicates, the sum of fully regenerated sea stars plus dead sea stars does not equal 25 for the last two rows of Table 2. Partially regenerated, living sea stars would be omitted from this count, which makes **D** the correct explanation. Nothing supports the explanation that some sea stars were lost (**A**), that the researchers made miscalculations (**B**), or that different sea star body parts fused together (**C**).
40. **G** You know from Experiment 2 that sea star body parts can regenerate into whole sea stars over time as long as a portion of the central body is present. Immediate skyrocketing of the population (**F**) is not possible due to the time it takes for sea stars to regenerate. **J** is wrong because some pieces will not contain portions of the central body and therefore will not regenerate. **G** takes the time factor into account as well as the evidence from Experiment 2 that some pieces do not undergo regeneration, so **G** is the correct answer.

WRITING—ESSAY

Grade 6 Essay

Sweeping generalizations are always dangerous. Many honors courses do require a great deal more work than standard high school classes; undoubtedly, some do not. Some non-honors courses may be just as difficult as Advanced Placement classes; most are less so. It would be impossible to draft a rule that would be completely fair to all students in all cases. But, in the interest of being as fair as possible to as many as possible, I believe that honors-level classes should be worth more towards a student's grade point average than a non-honors class.

At our school, the AP, or honors, classes are actually college-level courses. We use the same textbooks that our state and community colleges do, and we are required to do the same amount of class and homework. My honors classes require a great deal more time and effort than my non-honors classes do, so I believe an A in one of those classes represents a greater achievement. Having this work reflected in my grade point average would demonstrate to colleges that I am willing to go beyond what is required in my pursuit of academic excellence.

Another benefit of assigning higher value to honors classes would be that fewer students would shun honors classes for fear of damaging their GPAs. Since college admissions are extremely competitive, the temptation is great to choose classes in which you know you can excel. For example, I would never sign up for AP Biology, since I know how few As are given out in that course. Maybe if I did take it, however, I would discover that I have a hidden aptitude for science.

Still another advantage of a weighted grade system is financial. A student from our school can transfer AP credits to any state or community college, reducing the number of credits he or she has to pay for. Students who have to work and go to school part-time can graduate sooner and get on with their chosen careers (and with less of a student loan burden than they would have had without the AP credits). Students should not have to choose between a high GPA and what could amount to the financial means to attend college at all.

I realize that a weighted grade system would be unfair to some students. Certainly there are non-honors courses that are quite difficult and demanding, and some honor courses may be a breeze for some students. Others may work harder for a C in a non-honors class than I do for an A in an AP course. Still, if our GPAs are to accurately reflect our efforts and achievements, I believe a weighted grade system is vital.

Grader's Comments: This writer starts by acknowledging that both points of view have their strengths, but she also makes her position clear at the end of her introductory paragraph. She provides three strong, well-developed examples based on her own experiences.

The writer's Plan is evident in this Essay. Her examples are solid and relevant, and she uses Keywords and transitions (*Another benefit, Still another advantage, I realize...still*) to help the reader follow her argument. She restates both her thesis and her acknowledgment of the opposing argument's strengths in her concluding paragraph, which is well thought out, indicating that she managed her time well.

She uses varied sentence structure and shows a strong facility with language (*shun, excel, aptitude*). Her critical thinking skills are also evident in sentences such as *Sweeping generalizations are always dangerous* and *Students should not have to choose between a high GPA and what could amount to the financial means to attend college at all*.

Although the Essay is relatively error-free, indicating that the writer saved time to Proofread, she does misspell "demonstrated" in paragraph 2. Remember—even high-scoring Essays are likely to contain at least some minor errors.

Grade 4 Essay

My school, which offers Advanced Placement and honors classes in just about every subject at every grade level, does not use a weighted grade system. When the idea was written about last year in the school paper, our principal, Dr. Giamo, was interviewed. She gave a lot of reasons for sticking with the same 4-point grading scale for all classes, but all of her reasons basically seemed to boil down to one: she believes that students who take accelerated classes should not be rewarded with higher grades just because they have higher skill levels than other students. I disagree with this position, and I believe that a weighted grade system is the fairest approach.

All students have different abilities, but that's no reason to block a weighted grade system. Some students have a knack for math, and some are quick to learn foreign languages. However, our grades in class are not based on our different skill levels. Our grades aren't even based on how hard we try. If that was the case, then there would be no standard for an A, B, C, D or F. Everything would be up to the teacher's judgment about how well students use their abilities. The problems with this approach is obvious.

Instead of judging their abilities and effort, teachers judge students based on their performance in class. With this logic, students who perform at a higher level should receive higher grades. However, students who take the option of taking an Advanced Placement or honors class are choosing to reach for higher standards. The work load in these advanced classes can be twice as much as the work load in a regular class, and the subject material is more difficult. For example, when I took honors English my sophomore year, I had to write a five page book analysis every month. Students in the regular English class only were required to write a short book report once every quarter. The grading system should be adjusted so that students who reach to meet higher standards are not punished with a lower grade point average.

Many students in my school do not take honors and Advanced Placement classes for this very reason. They're concerned about keeping a high g.p.a. for their college applications, so they don't want to risk a B or even a C in a tougher class. They figure that the safe bet is staying in the regular classes and keeping a relatively easy A. A weighted grade system would encourage these reluctant students to take the classes that are appropriate for their skill level.

In conclusion, implementing a weighted grading system is a good idea. It will help high-ability students take advanced classes without sacrificing the high g.p.a.s that are needed for selective college admissions. Students who do not take honors classes will not be hurt by weighted grades. In fact, they might even benefit.

Grader's Comments: This Essay begins with details directly connected to the issue at hand. The writer explains the situation at his own school and then presents a specific counterargument to his position on the issue of weighted grades.

The second paragraph uses sound reasoning to address the argument against weighted grades. The comparison of English classes in the third paragraph serves to illustrate the point that honors classes are more challenging, but the writer fails to fully support the statement that students who take more challenging classes are "punished" by lower grade point averages. Clearer reasoning is needed here.

The organization of the Essay is apparent. The writer does not always use transitions, particularly within a paragraph. The transitions that are used tend to be simple, such as "However," "For example," and "In conclusion." The introduction is strong, but the conclusion is not much more than a repetition of the ideas already presented in the Essay. In addition, it is not clear how students who do not take honors classes might benefit from weighted grades.

Sentence structure in the Essay is appropriately varied, but the writer’s vocabulary generally lacks range. Note the repeated use of the words “encourage” and “abilities.”

The Essay contains some noticeable errors, including a mistake in subject–verb agreement in the last sentence of the second paragraph and a misplaced modifying phrase at the beginning of third paragraph.

Clearer reasoning, more varied vocabulary, and a stronger conclusion could make this a 5 Essay.

Grade 2 Essay

The issue of weighted grades have never come up at my school as far as I know, but it seems like something important. The people who want weighted grades have a good point about not wanting their grade point to be ruined. But they shouldn't be taking those classes if they don't think they can do well in them.

I agree that its hard to say which class is harder. Like last year when I took Algebra II from Mr. Pottebaum and my best friend took it with Mr. Fisher. I had homework every night and quizzes every week and about twice a month a major test. Mr. Fisher gave his class time to finish homework in class so they never had to do much at home. And from what my friend said, they didn't have much for tests. So my math class was harder just because I had a different teacher. Not because I was taking an honors course. That's not very fair. So maybe I should have gotten weighted grades, right?

All classes have different levels of difficulty, so there's no real way to come up with a fair system for weighting grades. And grades don't necessarily show how hard you work in a class. Some subjects just come easier for some people.

So the smartest students should take the honors classes even if they aren't rewarded with higher grades. It wouldn't be fair to all of the other students who couldn't get weighted grades. So no, our school shouldn't use weighted grades.

Grader’s Comments: This Essay shows some understanding of the Prompt, as well as an awareness of the complexity of the issue. Though the Essay begins with the weak qualitative phrase “it seems like,” the first paragraph does address a counterargument to the position the writer eventually takes.

The second paragraph is filled with details about the writer’s experience in a math class in comparison to her friend’s experience in another class. However, these details stray from the Prompt’s topic of weighted grades. The writer’s question at the end of the paragraph does little to present her argument in a positive light.

Transitions and organization in the Essay are very limited. The writer repeatedly uses the conversational conjunctions “so” and “and” to connect sentences.

An introduction and conclusion are both present, but neither makes a strong statement. The thesis statement does not appear until the last sentence of the essay, a tactic that is risky.

The writer uses rather simple vocabulary and sentence structure. The Essay is filled with sentence fragments. Other errors include a mistake in subject–verb agreement in the first sentence and the incorrect use of the pronoun “its” in the first sentence of the second paragraph.



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