

## REVISING/EDITING PART A

1. The question asks for the identification of the sentence that contains an error in its construction and should be revised.

**D: Correct.** Sentence 4 contains an error because the sentence uses the plural pronoun “them” to refer to “The blobfish’s,” which is singular in number. The word “them” should be changed to “it.” The paragraph refers to the blobfish as a singular species in each of its four sentences, and sentence 4 should be revised to match.

**A: Incorrect.** There are no errors in sentence 1. The singular pronoun “its” matches the number of the word it refers to, the singular noun “blobfish.” Additionally, the clause “a creature that certainly resembles its name,” is correctly set off by commas to provide an additional, but not essential, detail about the blobfish.

**B: Incorrect.** There are no errors in sentence 2. The singular pronoun “its” matches the number of the word it refers to, the singular noun “blobfish.” Additionally, the structure of the sentence correctly shows that the clause “Because it has very few muscles and its density is close to that of water” modifies the words “the blobfish.”

**C: Incorrect.** There are no errors in sentence 3. The “it” in the sentences refers to “the blobfish” mentioned in the previous sentence. The use of singular pronouns in sentence 3 is consistent with the rest of the paragraph.

2. The question asks for the revisions that are needed to correct errors in the paragraph.

**H: Correct.** Deleting the comma after “gelato” would include the clause “and allow it to melt more quickly” with the first part of the clause “which enhances the texture and flavor of the gelato.” In this clause, the word “and” indicates that the two verb phrases (“enhances the texture and flavor of gelato” and “allow it to melt more quickly”) share a subject, “which” (referring to the act of serving gelato 10 to 15 degrees warmer than ice cream). The two ideas should not be separated by a comma within the clause. The entire clause “which enhances the texture and flavor of the gelato and allow it to melt more quickly” should be separated from the main clause only by the comma after “cream” because the entire clause is a nonrestrictive clause. This clause provides additional, but not essential, information about the purpose of serving gelato at a warmer temperature than when serving ice cream. Changing the verb “allow” to “allows” is also necessary to match the use of the singular noun “gelato,” which is the subject of the sentence.

**E: Incorrect.** The revisions in Option E introduce new errors. The colon after “wonder” is needed to set off the question “what is the difference between the two?” from the rest of the sentence. In addition, changing the verb “is” to “are” would be incorrect with the use of the singular noun “difference,” which is the subject of the question, “what is the difference between the two?”

**F: Incorrect.** The revisions in Option F introduce new errors. The comma following the introductory phrase “To start with” helps with clarity and is needed to separate the phrase from the rest of the sentence. Changing “it is” to “they are” would be incorrect with the use of the singular noun “butterfat content,” which is what the words “it is” refer to in the sentence.

**G: Incorrect.** The revisions in Option G introduce new errors. The comma following “process” is necessary to set off the nonrestrictive clause “which adds less air to the frozen treat” from the rest of the sentence. This

clause is considered a nonrestrictive clause because it provides additional, but not essential, information about the mixing process. Changing the verb “makes” to “make” would be incorrect with the use of the singular noun “mixing process,” which is the subject of the sentence.

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3. The question asks for the revision that corrects the error in sentence structure in the paragraph.

**A: Correct.** As written, the first sentence (“In 1967 Katherine Switzer . . . legendary race.”) is a run-on sentence because a comma is used to combine two independent clauses. Independent clauses are complete sentences with a subject and a verb. The clauses—“In 1967 Katherine Switzer signed up for the Boston Marathon using her first and middle initials instead of her full name” and “at that time, only men were permitted to officially register and receive a number for the legendary race”—should be separated with a period instead. The revision in Option A correctly places a period after the word “name” and capitalizes the word “At” to separate the two independent clauses into two sentences.

**B: Incorrect.** The revision in Option B introduces an error into the paragraph and does not revise the run-on in the first sentence. The clause “Once officials realized a woman was attempting to run in the race” is a modifying phrase that provides information about “they” (which refers to the “officials”). The phrase cannot stand alone without the rest of the sentence. Changing the comma after the word “race” to a period would incorrectly separate the phrase from the rest of the sentence.

**C: Incorrect.** The revision in Option C introduces an error into the paragraph and does not revise the run-on in the first sentence. The sentence “Switzer prevailed and finished in just over four hours, paving the way for the official rule change that allowed for the inclusion of women” is a complex sentence, which combines an independent clause (“Switzer prevailed and finished in just over four hours”) and a dependent clause (“paving the way for the official rule change that allowed for the inclusion of women”). The clause “paving the way for the official rule change that allowed for the inclusion of women” is not a complete sentence and must stay connected to the first part of the sentence. Changing the comma after “hours” to a period would incorrectly separate the dependent clause from the rest of the sentence.

**D: Incorrect.** The revision in Option D introduces an error into the paragraph and does not revise the run-on in the first sentence. Changing the comma after “261” to a period would incorrectly separate the modifying clause “the same number she had worn in that first run in 1967” from the words it describes (“number 261”). Additionally, the clause “the same number she had worn in that first run in 1967” is not a complete sentence.

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## REVISING/EDITING PART B

### Martial Arts for the Mind and Body

4. The question asks for the best way to combine sentences 2 and 3.

**F: Correct.** Option F is correct because the word “while” at the beginning of the sentence best indicates the contrast between the ideas in sentences 2 and 3. Sentence 2 states that historians do not know the exact origins of martial arts (“unsure of exactly when and where”). Sentence 3 describes what historians do know about these origins (“practiced by several different societies for many centuries”). This combination indicates that historians have a general understanding about the origins of martial arts even though they cannot confirm the exact details.

**E: Incorrect.** This way of combining sentences 2 and 3 places unnecessary emphasis on characterizing historians, and it does not clearly show the contrasting relationship between the idea from sentence 2 that historians do not know the exact origins of martial arts and the idea in sentence 3 that historians know that martial arts have a long history.

**G:** Incorrect. Starting this sentence with the word “because” indicates a cause-and-effect relationship that does not exist between the ideas in the original sentences. The idea from sentence 3, that historians know that martial arts have been practiced for many years, did not cause the idea in sentence 2, that historians do not know exact details about the origins of martial arts.

**H:** Incorrect. The conjunction (connecting word) “and” does not clearly show how the ideas in sentences 2 and 3 are related. While “and” can be used to combine related sentences, it does not demonstrate the contrast between the idea in sentence 2, that historians do not know the exact origins of martial arts, and the idea in sentence 3, that historians know that martial arts have a long history.

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5. The question asks where sentence 10 should be moved to improve the organization of the second paragraph.

**D: Correct.** Option D is correct because sentence 10 logically follows and supports the idea in sentence 8 that “the study of martial arts can provide an opportunity to develop” the qualities of discipline, focus, and respect. Sentence 10 explains this idea with examples, describing three specific ways that students in a typical tae kwon do class develop discipline, focus, and respect—by “diligently practicing,” “listening carefully,” and “bowing to the instructor and following directions.”

**A:** Incorrect. Starting this paragraph with sentence 10 would weaken the paragraph’s organization because it would place a supporting detail sentence (sentence 10) before the topic sentence (sentence 6). Sentence 6 belongs at the beginning of the paragraph because it introduces the topic—the qualities of discipline, focus, and respect. Sentence 10 supports the key idea of the paragraph, that these qualities can be developed through the study of martial arts. If sentence 10 preceded sentence 6, the transitional phrase “for example” would refer to an unspecified topic and idea.

**B:** Incorrect. Sentence 6 presents the idea that “discipline, focus, and respect are important qualities for everyone to have,” but the example in sentence 10 does not directly relate to this idea. Sentence 10 explains how martial arts develop these qualities, not why they are important qualities to have. Because sentence 10 is not directly related to the idea in sentence 6 (the qualities are important), it should not follow sentence 6.

**C:** Incorrect. Sentences 7 and 8 should not be separated, because the idea presented in sentence 8—that “the study of martial arts can provide an opportunity to develop these skills”—is directly related to the idea from sentence 7—that the skills of discipline, focus, and respect “are not innate; they must be learned and practiced.” Sentence 10 supports the idea from sentence 8 that martial arts “can provide an opportunity to develop these skills” by describing an example from a typical martial arts class, so sentence 10 should not precede sentence 8.

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6. The question asks for the revision of sentence 12 that best maintains the formal style established in the passage.

**G: Correct.** Option G is correct because it uses serious and academic wording throughout the whole sentence. The phrases “many teenagers,” “encounter challenges,” and “succeed both academically and personally” make the sentence’s style more consistently formal than the other options.

**E:** Incorrect. The phrases “A lot,” “put up with,” “difficult things,” and “do well in school” are worded informally; therefore, this sentence does not consistently maintain the formal style established in the passage.

**F:** Incorrect. The phrases “deal with,” “tough situations,” “stay on top of,” and “do well in life” are worded informally; therefore, this sentence does not consistently maintain the formal style established in the passage.

**H:** Incorrect. The phrases “A lot,” “face problems,” and “keep up with” are worded informally; therefore, this sentence does not consistently maintain the formal style established in the passage.

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7. The question asks for the transitional phrase that should be added to the beginning of sentence 17.

**A: Correct.** Option A is correct because it best shows the chronological progression between the ideas in sentence 16—progressing through levels of achievement “requires students to take responsibility and be accountable for achieving set goals”—and the ideas in sentence 17—“students gain confidence and experience companionship with other students who are progressing through the ranks.” The transitional phrase “over time” shows the gradual nature of the relationship between the cause in sentence 16 and the effect in sentence 17.

**B:** Incorrect. Though the ideas in sentences 16 and 17 are related, “in fact” does not show the correct relationship between the ideas. The transitional phrase “in fact” emphasizes an idea by giving a detail or example of greater intensity, but the ideas in sentence 16—progressing through levels “requires students to take responsibility and be accountable for achieving set goals”—and the ideas in sentence 17—“students gain confidence and experience companionship with other students who are progressing through the ranks”—are related by cause-and-effect rather than by (degree of) intensity.

**C:** Incorrect. The transitional phrase “even so” is used to connect opposing ideas, but the ideas in sentence 16—progressing through levels “requires students to take responsibility and be accountable for achieving set goals”—does not contrast with the ideas in sentence 17—“students gain confidence and experience companionship with other students who are progressing through the ranks.”

**D:** Incorrect. Although the transitional phrase “for instance” connects an idea with a related example, it does not show the cause-and-effect relationship between the ideas in sentence 16—progressing through levels “requires students to take responsibility and be accountable for achieving set goals”—and the ideas in sentence 17—“students gain confidence and experience companionship with other students who are progressing through the ranks.”

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8. The question asks for the sentence that would best follow and support sentence 18.

**G: Correct.** Option G is correct because sentence 18 conveys that the greatest benefit of practicing martial arts is “health and fitness,” and Option G illustrates some specific ways that martial arts training helps improve physical fitness—“strengthen their heart, boost endurance, improve balance, and develop muscle tone.”

**E:** Incorrect. Though the idea of advancing one’s career is certainly appealing for adults, this benefit is not directly tied to “health and fitness” and, therefore, does not support sentence 18.

**F:** Incorrect. While the passage does discuss potential benefits related to discipline, focus, and confidence (sentences 6 and 11), sentence 18 is solely related to health and fitness benefits and should not be followed by a description of “other skills.”

**H:** Incorrect. Some readers may choose this option because sentence 5, sentence 15, and sentence 18 discuss the physical aspects of practicing martial arts, but the idea that people who practice martial arts are concerned about their overall health does not provide further details about the connection between training and health.

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9. The question asks for the concluding sentence that best replaces sentence 23 and supports the topic presented in the passage.

**B: Correct.** Option B is correct because it best supports the topic of the passage—the benefits of studying martial arts—by stating two reasons why people should study martial arts: to “experience the satisfaction of achieving goals while also improving themselves.”

**A: Incorrect.** The phrase “the skills needed to progress in rank” is vague, and progressing in rank is not related to the overall topic of the passage, which is the benefits of studying martial arts. The topic of the passage is not the “many ways to begin studying martial arts” or how “people can easily discover” the benefits of martial arts.

**C: Incorrect.** Some readers may choose this option because it refers to the benefits of martial arts, but the word “because” and the detail that “enrollment in martial arts courses has increased” make this sentence unrelated to the overall topic of the passage, which is about the benefits of studying martial arts, not the number of people who participate.

**D: Incorrect.** Although the benefits of studying martial arts are described for both teens (in the third paragraph) and adults (in the fourth paragraph), the topic of the passage is the overall benefits of studying martial arts, which include mental discipline (discussed in the first, second, and third paragraphs) in addition to health benefits. Furthermore, the passage does not compare the health effects of studying martial arts across age groups.

## READING COMPREHENSION

### The Best Laid Plans of Ravens

10. The question asks how paragraph 1 introduces the ideas that ravens may perceive time and plan for the future.

**F: Correct.** Edgar Allan Poe’s poem features a raven that speaks in a prophetic way. Since prophecies are a prediction of the future, the statement suggests that the raven has a sense of time. This reference is then tied to a modern study where “researchers argue that ravens may be able to think ahead and even plan for the future” (paragraph 1).

**E: Incorrect.** While paragraph 1 states that people have historically believed that animals do not understand the passage of time, this paragraph is not the introduction to the idea that ravens may plan for the future.

**G: Incorrect.** Although the idea of a raven being aware of the future in the poem is tied to a study that “hints that one particular idea behind the poem might not be as far-fetched as it seems” (paragraph 1), this connection does not prove that the poem is what prompted scientists to conduct such a study.

**H: Incorrect.** Paragraph 1 introduces the idea “that ravens may be able to think ahead and even plan for the future” but does not explain in detail the importance of differentiating between whether ravens act on instinct or on their ability to plan.

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11. The question asks which statement describes the effect in the passage of the phrase “merely instinctual” from paragraph 2.

**D: Correct.** The passage suggests that in order for an animal’s actions to qualify as planning for the future, “the animal must use specific decision-making skills to solve a problem” (paragraph 2). The behavior of hoarding food is based on instinct and done automatically without real thought.

**A:** Incorrect. The passage does not question animals' ability to find and save food but rather whether this or other behavior involves thought and planning for the future.

**B:** Incorrect. While the sentence states that "many animals hoard food," the passage does not suggest that they give priority of thought to this activity; they hoard food out of instinct.

**C:** Incorrect. Although the passage discusses animals' tendency to store a great deal of food, it does not suggest that their hoarding goes beyond their needs.

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**12.** The question asks which sentence from paragraph 4 supports the argument presented in the sentence from paragraph 1.

**H: Correct.** This sentence from paragraph 4 shows that the ravens seem to make a decision, which involves a thought process. The ravens chose to wait for the researcher rather than take the treats, suggesting that the ravens understood that the researcher would trade a larger treat for the bottle cap.

**E:** Incorrect. This sentence from paragraph 4 refers to the ravens' ability to adapt and learn but not to plan and think ahead.

**F:** Incorrect. This sentence from paragraph 4 relates the actions of the researcher rather than the actions of the ravens and does not provide evidence in support of the argument that ravens have the ability to think and plan ahead.

**G:** Incorrect. This sentence from paragraph 4 does not describe a behavior of the ravens that would support the argument in the sentence from paragraph 1; instead it relates the actions of the researchers without giving any information about the ravens' responses.

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**13.** The question asks which of the ravens' behaviors in the first experiment described in paragraph 4 most strongly supports the claim that the birds are capable of planning.

**B: Correct.** Once the ravens learned which stone would open the box, they consistently selected only that stone.

**A:** Incorrect. While "the researchers showed the birds how to use a small stone to open a box and get treats" (paragraph 4), the acceptance of the treats does not demonstrate planning.

**C:** Incorrect. Although the birds learned which stone opened the box, this behavior demonstrates not their ability to plan but rather their intelligence.

**D:** Incorrect. The birds' patience shows their anticipation for and understanding of the future gain of a treat but does not provide the strongest evidence of their ability to plan.

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**14.** The question asks how the sentence from paragraph 4 fits into the overall structure of the passage and contributes to the development of ideas.

**E: Correct.** The patience the ravens demonstrated in the sentence from paragraph 4 while waiting for the return of the researcher in both experiments shows their understanding that the researcher's return holds a benefit for them.

**F:** Incorrect. The passage does not state that there was a set timeline for the researcher's return; the seventeen hours, mentioned in the sentence from paragraph 4, was just the longest time measured.

**G:** Incorrect. The experiment did involve the ravens solving a problem. The ravens' patience demonstrated an understanding that there would be future gain for them by waiting for the researcher, but the sentence from paragraph 4 does not demonstrate the ravens' ability to plan.

**H:** Incorrect. The way the ravens obtained the food from the researcher required far more than instinct; in order to get the maximum amount of food, a number of learned skills, such as selecting a stone that would open the box and choosing the bottle cap over the immediate treat, were necessary. The ravens' ability to wait, as demonstrated in the sentence from paragraph 4, does not influence or affect a learned behavior or a possible instinct to hoard food.

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15. The question asks the reader to choose the statement with which the author of the passage would most likely agree.

**B: Correct.** As paragraph 5 notes, "more evidence needs to be gathered before scientists can fully conclude that ravens can plan for the future." The evidence is not yet considered definitive because "some scientists argue that the ravens might be choosing the stone and bottle cap because the ravens have been trained to do so, not necessarily because the ravens are thinking ahead" (paragraph 5). Therefore, more research is needed in order to draw a complete conclusion.

**A:** Incorrect. It is very likely that additional experiments or changes to the experiments presented can help scientists tell the difference between the types of behavior that the animals are showing. The current research supports "other recent advances in animal science" and also shows that ravens are "much smarter" (paragraph 5) than previously believed, making them excellent candidates for further research.

**C:** Incorrect. The passage shows that the scientists did not draw conclusions based on one experiment alone. The passage also states in paragraph 5 that additional research and experiments are necessary in order to obtain conclusive evidence of ravens' abilities to think and plan ahead.

**D:** Incorrect. The passage claims that more evidence must be gathered in order to make a claim that animals can definitely plan for the future. The evidence presented helps scientists "believe that ravens do actually think about their own future" (paragraph 5), but more confirmation is needed. The passage does not discuss performing experiments on additional species.

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16. The question asks how paragraph 5 fits into the overall structure of the passage and contributes to the development of ideas.

**G: Correct.** Paragraph 5 notes that some doubt remains ("Some scientists argue that the ravens might be choosing the stone and bottle cap because the ravens have been trained to do so, not necessarily because the ravens are thinking ahead") and that more experimentation is needed; the author concludes that there is reason to believe the originally stated theory that ravens are quite smart and can give thought to how future events may affect them.

**E:** Incorrect. While paragraph 5 states that "more evidence needs to be gathered before scientists can fully conclude that ravens can plan for the future," this statement suggests that more research is needed, not that the results of the Lund University studies are problematic.

**F:** Incorrect. Paragraph 5 does not discuss steps of the study or emphasize difficulties in determining whether the behaviors shown in the study were planned or practiced; instead it simply suggests that more study is required to make such a determination.

**H:** Incorrect. Paragraph 5 does not list the effects of the study or criticize the experiment for not differentiating between planning and instinct. The paragraph explains why the results of the experiments are not conclusive and emphasizes that more research is needed.

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**17.** The question asks how the author conveys a point of view on the study of animal intelligence.

**A: Correct.** Paragraphs 3 and 4 focus on the process and details of the experiments that scientists conducted. This detailed information from the author provides a sense of how the ravens demonstrated planning abilities beyond natural instinct. The author supports the claims from the experiments, calling the findings “exciting” and stating in the conclusion that “these experiments show that ravens could be much smarter than first believed” (paragraph 5).

**B:** Incorrect. Although two experiments are described in the passage, the description presents the experiments as building on each other and does not compare their results. The passage states that “these experiments show that ravens could be much smarter than first believed, and scientists now believe that ravens do actually think about their own future” (paragraph 5).

**C:** Incorrect. The author presents information from the experiments and the results that were gathered from them; while there is an admission that “more evidence needs to be gathered before scientists can fully conclude that ravens can plan for the future” (paragraph 5), the author does not criticize the experiments that are presented.

**D:** Incorrect. While the author does discuss some previously held beliefs about animal intelligence in paragraph 1, the focus of the passage is that experiments indicate that there is reason to question these beliefs, since “these experiments show that ravens could be much smarter than first believed” (paragraph 5). The previously held beliefs are not considered inaccurate by the discussion in the passage because only one example—the raven—is provided. The passage does not state that beliefs about animal intelligence as a whole are inaccurate.

### Looking for the Smallest Spark of Everything

**18.** The question asks what lines 5–8 reveal about the speaker to help develop a central idea of the poem.

**F: Correct.** Lines 5–8 show the connection between the particles by using the words “beneath the level” repeatedly. The progression of particles of matter, from atoms to subatomic particles, “protons, electrons, neutrons” (line 7), ends with a question. By asking, “what, exactly?” (line 8), the speaker questions the mysteries that are still unsolved about the nature of matter, which is a central idea of the poem.

**E:** Incorrect. In lines 5–8, the speaker is demonstrating knowledge about the structure of matter, not demonstrating interest in how matter’s parts work together; for example, “beneath the level of molecules are atoms, / and beneath the level of atoms, we find / protons, electrons, neutrons” (lines 5–7).

**G:** Incorrect. The speaker expresses curiosity in line 8 (“what, exactly?”) but does not use language in lines 5–8 that expresses a desire to prove a point. The poem does not show any conflict, either from within or from other scientists, about the concept that particles make up matter.

**H:** Incorrect. While the poem is about the Large Hadron Collider, which, according to the introductory text before the poem, is a tool that “helps scientists study and understand how the smallest particles of matter interact with one another,” lines 5–8 do not suggest the use of tools but rather question what comes after the “protons, electrons, neutrons” (line 7).

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19. The question asks how the break between the second stanza (lines 5–14) and the third stanza (lines 15–26) serves as a transition between ideas.

**A: Correct.** The second stanza describes physical objects, including “your fingernail, / the candy at the back of your mouth, / the coffee your teacher drank this morning” (lines 9–11) and even “the stuffed dog” that “your little sister” (line 12) carries around. In the third stanza, the speaker introduces the topic of observation by asking, “How do we find it?” in line 17. Lines 17–18 offer one possible method for finding “it” (“We can listen for it / in the wavelengths from deep space”), while lines 20–22 describe a second method (“Or we can build long, / deep circular tunnels beneath the surface / of this Earth and race particles”). With these details, the focus of the poem shifts toward explaining how the particles that make up everything are observed.

**B: Incorrect.** While the speaker does list common items such as “candy” and “coffee” (lines 10–11) that many people are familiar with and that seem to be simple in composition or structure, the speaker does not imply in the third stanza that invisible objects complicate the world. In fact, the speaker claims that everything is “made up of the same stuff” (line 16), which simplifies the invisible world.

**C: Incorrect.** The second stanza focuses on the structure of matter (“beneath the level of molecules are atoms, / and beneath the level of atoms, we find / protons, electrons, neutrons” [lines 5–7]) and does not discuss the methods used to explore this structure in space. The third stanza mentions space (“We can listen for it / in the wavelengths from deep space” [lines 17–18]) and how we can “race particles” (line 22) on Earth but does not compare the methods of study used in these different locations.

**D: Incorrect.** While the second stanza describes items that are familiar to readers, including “your fingernail, / the candy at the back of your mouth, / the coffee your teacher drank this morning” (lines 9–11), the familiarity of these items does not necessarily mean they are part of a comfortable environment. The third stanza discusses studying the parts of matter “until everything we think we know / bangs against everything else we know” (lines 25–26). The “banging” the speaker refers to is not related to an unstable environment but rather to the mysteries of atomic structure.

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20. The question asks what the comparison in lines 23–24 of the poem is mainly meant to show.

**F: Correct.** Lines 23–24 describe “tiny cars / flashing along at close to the speed of light,” which describes how the particles move.

**E: Incorrect.** While the particles are moving “close to the speed of light” (line 24), which would make them difficult to see, the comparison in lines 23–24 focuses on the movement of the particles, not how visible they are.

**G: Incorrect.** Lines 23–24 do not describe the shape of the particles but rather their movement, which is “flashing along at close to the speed of light” (line 24).

**H: Incorrect.** The word “flashing” in line 24 does not refer to light in darkness but rather to speed, and the word “light” is used to reference a measurement of speed, not brightness in darkness.

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21. The question asks how lines 25–26 help develop a central idea in the poem.

**B: Correct.** The lines “until everything we think we know / bangs against everything else we know” (lines 25–26) are about how the old knowledge about particles interacts with newfound knowledge.

**A: Incorrect.** Lines 25–26 illustrate the collision of old and new information about particles, but they do not describe “creative methods” that are currently being invented to research subatomic particles.

**C:** Incorrect. While lines 20–22 describe the Large Hadron Collider as “long, / deep circular tunnels beneath the surface / of this Earth” where scientists “race particles,” lines 25–26 refer to the collision of old and new ideas about particles, not the limitations of the Large Hadron Collider.

**D:** Incorrect. Lines 25–26 focus on what “we think we know” about subatomic particles and how new discoveries challenge “everything else we know.” However, the challenge is not a result of scientists debating one another but rather what the Large Hadron Collider reveals about particles.

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**22.** The question asks what the imagery in lines 27–28 reveals about the speaker.

**G: Correct.** The word “explosion” and the phrase “briefly incandescent” create a picture of rapid changes and short bursts of bright light, revealing how powerful the new particles are. The language the speaker uses is positive, revealing that the speaker admires the power of the reaction and stands in awe of the new particles.

**E:** Incorrect. The physicists mentioned in the fifth stanza (lines 33–44) are described as mere observers: they “jot down / what they can” (lines 41–42). In lines 27–28, the speaker is focused on the reaction between the colliding particles, not on the physicists who study them.

**F:** Incorrect. The speaker describes the particle collision in detail, but the text does not imply that the speaker has personally witnessed a collision. The speaker implies that his or her understanding of the collision is based on the experiences of the physicists observing the phenomenon (“They spin, and it is only down there / in the darkness—in the vast garage / where physicists jot down / what they can, whatever seems most real— / that they let us perceive their wild dancing” [lines 39–43]).

**H:** Incorrect. The poem reveals the speaker’s deep knowledge about subatomic particles. For example, the speaker is able to name the new particles discovered—“the quarks, the leptons, and the bosons; / the baryons and the mesons” (lines 29–30)—and is able to use imagery to create a powerful picture that reveals the complexity of a scientific process that humans have never been able to see.

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**23.** The question asks why the speaker refers to familiar objects and events in lines 30–32.

**D: Correct.** The phrase “their names” (line 30) refers to the scientific names of the particles: “the quarks, the leptons, and the bosons; / the baryons and the mesons” (lines 29–30). In lines 30–32, the speaker expresses the opinion that these scientific terms sound nonsensical, much like the strange scientific names of dinosaurs or silly band names.

**A:** Incorrect. In lines 30–32, the speaker only gives an opinion about what the names sound like and does not simplify confusing information about how these newly discovered particles function or exist.

**B:** Incorrect. In lines 30–32, the speaker is only describing what the names of the particles sound like: “dinosaurs or maybe bands” (line 31). These descriptions illustrate the speaker’s opinion but do not explain specific scientific ideas.

**C:** Incorrect. In lines 30–32, the mention of the names of the particles sounding like “dinosaurs or maybe bands” (line 31) reveals the speaker’s opinion about the names but does not explain the process of researching the particles.

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**24.** The question asks for the most likely reason the poet includes lines 36–39 in the poem.

**F: Correct.** The particles that are “Everything and everywhere” (line 15) make up the objects mentioned in lines 36–39: a “pencil in your hand” and the planet “Jupiter.” Even though these objects are different from

each other and extremely far apart in the universe, they are made up of and affected by these particles. The “powerful effect” is that the particles keep the objects “both together and apart” (line 36).

**E:** Incorrect. While the poem implies that the research is important, lines 36–39 do not point to a need for more research. Instead, the lines explain the power of the particles in the universe.

**G:** Incorrect. While the physicists can only “jot down / what they can, whatever seems most real” (lines 41–42), the discoveries about particles are ongoing and informative. The speaker shares that the particles are “everything and everywhere” (line 15) and that they “spin” (line 34) because “this is how gravity / enters our world” (lines 34–35).

**H:** Incorrect. The speaker states that particles keep together objects in space, such as Jupiter, as well as objects on Earth, such as “the pencil in your hand right now” (line 37). However, in lines 36–39, the speaker is not comparing the study of subatomic particles with the study of objects in space (astronomy); the speaker is implying that because particles are “everything and everywhere” (line 15), the study of particles affects our understanding of everything in the universe, regardless of location.

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25. The question asks which central idea is emphasized in the last stanza (lines 33–44).

**A: Correct.** Throughout the poem, the speaker describes how everything in our universe and in our everyday lives is made up of these tiny particles. The last stanza allows us to picture the scientists working “in the darkness” (line 40), jotting down notes. Phrases like “wild dancing” (line 43) and “combusting to the music” (line 44) describe the activity of the particles and communicate the idea that the findings are exciting.

**B:** Incorrect. While the Large Hadron Collider is in an unconventional location that is important in the poem, it is the only location described in the poem: “it is only down there / in the darkness—in the vast garage” (lines 39–40). While the darkness is a special condition, the poem does not describe other conditions where the same type of research is being carried out. The poem does mention that “we can listen for it / in the wavelengths from deep space, / talking back to us from unimaginable / distances” (lines 17–20), but this description implies the use of a tool (a satellite), not a location.

**C:** Incorrect. The last stanza states that “The one thing we know for sure / is that they spin” (lines 33–34). This detail is one aspect of the particles’ behavior that is known; therefore, the particles are not completely unpredictable. In addition, the poem never describes the particles breaking up matter in the universe; the poem describes only their movements and collisions.

**D:** Incorrect. While the “physicists jot down / what they can, whatever seems most real” (lines 41–42), the research they share with the world is complicated and difficult to understand, making it unlikely that their findings are relatable to most people.

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26. The question asks what lines 39–44 reveal about the speaker.

**G: Correct.** The speaker uses the phrases “only down there” (line 39), “physicists jot down . . . whatever seems most real” (lines 41–42), and “they let us perceive” (line 43) to convey that the physicists have a rare role in studying the mysteries of the universe and that the speaker appreciates and is interested in their work.

**E:** Incorrect. While the discoveries are made “in the darkness” (line 40), the imagery conveys the speaker’s positive tone through descriptions like “perceive their wild dancing” (line 43) and “combusting to the music they make” (line 44), not frustration.

**F:** Incorrect. In lines 39–44, the imagery of energetic movement (“They spin,” “their wild dancing,” and “combusting to the music they make”) is used to describe the particles, not the physicists.

**H:** Incorrect. While the description of the experiments occurring “in the darkness” (line 40) may create a sense of secrecy, the secrets that the darkness refers to are the mysteries of subatomic particles, not the work processes that the physicists use.

### Excerpt from “The Spirit of the Herd”

27. The question asks which sentence from the excerpt best explains why Wade reserved Peroxide Jim for “emergency work.”

**D: Correct.** The sentence from paragraph 16 describes Peroxide Jim’s high level of skill and ability to perform in a life-and-death situation. Not only did Peroxide Jim recognize the emergency immediately (“From the flash of the lightning the horse had taken the bit”), but the horse also proved to have the physical capability (“had covered an indescribably perilous path at top speed, had outrun the herd and turned it from the edge of the rim rock”) and the mental fortitude (“without a false step or a tremor of fear”) required to respond appropriately to the dangerous situation.

**A:** Incorrect. While the sentence from paragraph 1 refers to Peroxide Jim’s intelligence and appearance, it does not tell why he would be useful in an emergency. Peroxide Jim is described as “supple, powerful,” and “intelligent,” which are all desirable traits for a horse used for herding cattle. However, this option is not the best answer because the sentence merely lists useful attributes, while option D shows those attributes being used in an actual emergency situation.

**B:** Incorrect. The sentence from paragraph 10 does not describe the actions of Peroxide Jim. The sentence describes what Wade and the horse were experiencing, but it does not include any reference to how Peroxide Jim was responding to the situation.

**C:** Incorrect. The sentence from paragraph 11 describes Wade’s experiences and does not focus on the actions of Peroxide Jim. It reveals Wade’s awareness of the danger he was in, but the only reference to Peroxide Jim in this sentence is the description of the horse having to work harder to run on the stonier ground as they neared the edge: from “the plunging of the horse,” Wade knew “that the ground was growing stonier, that they were nearing the rocks.” This quotation does not show that Peroxide Jim was the right horse to use for emergency work because it does not indicate, at this point in the text, that he was responding in a way that saved the herd or Wade.

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28. The question asks how paragraphs 1–2 contribute to the development of the central idea of the excerpt.

**E: Correct.** The description of Peroxide Jim in paragraph 1 indicates that the horse was a fine animal (“Along with the wagon had come the fresh horses—one of them being Peroxide Jim, a supple, powerful, clean-limbed buckskin, a horse, I think, that had as fine and intelligent an animal-face as any creature I ever saw” [paragraph 1]). The statement in paragraph 2 that Wade’s “faith in Peroxide Jim was complete” supports the central idea of the excerpt that Wade believed in Peroxide Jim’s abilities even before the horse turned the herd and saved the cattle.

**F:** Incorrect. Paragraphs 1–2 do not emphasize Wade’s high expectations for himself, nor are these expectations a central idea of the excerpt. The narrator expresses a high opinion of Wade’s abilities in his comparison of Peroxide Jim and Wade, referring to the horse as a “complement” (paragraph 1) for Wade; however, Wade showed complete trust in the horse’s ability to save the herd without his help, as evidenced by Wade dropping the reins to allow the horse to control the situation (paragraph 12).

**G:** Incorrect. The paragraphs refer to Peroxide Jim’s ability to handle cattle; in fact, paragraph 2 says that “the horse knew the cattle business.” It can be inferred that Wade had this knowledge as well, but this idea is not the focus of paragraphs 1–2 and is not the central idea of the excerpt.

**H:** Incorrect. Wade's ability to judge a horse's competence is not a central idea of the excerpt. The event described in the text is proof that Wade knew how to judge a horse's ability: Wade trusted Peroxide Jim, and Peroxide Jim did not let him down. The option puts the focus on Wade and one of his strengths, when the central idea and focus of the excerpt is Peroxide Jim's abilities and strengths, not Wade's.

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**29.** The question asks how paragraph 3 conveys the effect of the setting on the cattle drive.

**B: Correct.** Paragraph 3 describes the land where the herd was as being "as level as a floor" but "rimmed by sheer rock, from which there was a drop to the bench of sage below." The drop was "a perpendicular fall of about three hundred feet"—any animal or person could fall over that edge. It was the change in height, from flat tableland to sheer drop-off, that made the terrain so dangerous.

**A:** Incorrect. The riders were not trying to move the herd through the darkness. Instead, the reference to the growing darkness ("overtaken by the dusk") indicates that the riders had halted the animals for the night because moving the herd across the desert in the darkness would have been much too dangerous because of the sheer drop-off at the edge of the tableland. The riders needed the daylight to navigate the herd safely through the "pass descending to the next lower bench."

**C:** Incorrect. The use of the word "desert" in the first sentence of the paragraph does not highlight the isolation of the setting nor indicate that the riders and the herd were uncomfortable being alone. Instead, the word merely establishes the setting where the action occurred: "it lay as level as a floor, rimmed by sheer rock, from which there was a drop to the bench of sage below."

**D:** Incorrect. The excerpt does not indicate that the steep terrain made it difficult for the herd to move forward. The herd was not expected to navigate the steep terrain. Instead, the steep terrain presented a danger to the herd that must be avoided. The riders intended to move the herd safely through passes that descended gradually to lower elevations.

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**30.** The question asks which sentence from the excerpt best reveals the mood on the drive before the lightning struck.

**F: Correct.** The sentence from paragraph 5 describes the riders singing "to preempt the dreaded silence, to relieve the tension" and to prevent "shock" from any sudden noise. These words provide a strong sense of the tense, heavy mood in which a terrible event such as a stampede could quickly happen.

**E:** Incorrect. The sentence from paragraph 3 describes the setting but does not contain words that create a strong mood. In fact, this sentence shows that while there were dangerous surroundings, the riders and the herd were "now halted."

**G:** Incorrect. The sentence from paragraph 6 contains words that communicate refreshment and relief: "fresh, moist wind with the taste of water." Relief was not the primary mood before the lightning struck; instead, the refreshing scent of rain and its promise of water was partially responsible for the herd's stampede toward the edge once the lightning struck ("their bald faces lifted to drink the sweet wet breath that came over the rim" [paragraph 7]).

**H:** Incorrect. While the words "ghostly" and "still moving in a circle" in the sentence from paragraph 9 create a strange and mysterious image, the mood before the lightning struck was not one of mystery or suspense. Instead, these descriptive words are used to indicate Wade's faint ability to see the herd moving in the dark.

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31. The question asks how paragraph 9 fits into the overall structure of the excerpt.

**D: Correct.** Paragraph 9 describes the lightning strike that made the cattle panic and stampede. The stampede is the main conflict Wade and Peroxide Jim addressed in the excerpt; and therefore, paragraph 9 is essential to the overall structure of the text.

**A: Incorrect.** Wade was alert long before the events of paragraph 9. In paragraph 4, he began singing to the cattle because he knew that they were on the verge of stampeding. He was even more alert when he “caught a breath of fresh, moist wind with the taste of water in it” (paragraph 6) and heard thunder in paragraph 8: “The sound seemed to come out of the earth, a low, rumbling mumble.”

**B: Incorrect.** Wade and the other riders were not calm; rather, they were alert and attempting to keep the cattle calm by singing to them. They were as prepared as they could be for what was about to happen, as shown in paragraph 1, through the selection of fresh horses and, specifically, Wade’s choice to ride Peroxide Jim in the face of possible danger: “Wade had been saving this horse for emergency work.”

**C: Incorrect.** Although Wade’s leadership is implied in paragraph 9 (“He must keep them going. He touched his horse to ride on with them”), his leadership is revealed in earlier portions of the excerpt as well (“Wade had been saving this horse” [paragraph 1]; “Wade began to sing” [paragraph 5]), so this is not new information and is not relevant to the overall structure of the excerpt.

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32. The question asks how the sentences from paragraph 11 and paragraph 16 develop a central idea in the excerpt.

**G: Correct.** Wade recognized that Peroxide Jim knew to turn the herd without any instruction from him. Throughout the excerpt, Wade exhibited confidence in his horse, Peroxide Jim. For example, the narrator describes Peroxide Jim as a “superior horse” in paragraph 1 and says that Wade’s “faith in Peroxide Jim was complete” in paragraph 2. After Wade let go of the reins (paragraph 12), the horse took over, doing exactly what needed to be done to save Wade, the herd, and himself: “a big white steer, which the horse, with marvelous instinct, seemed to pick out from a bunch, and to cling to, forcing him gradually ahead, till, cutting him free from the bunch entirely, he bore him off into the swishing sage” (paragraph 14).

**E: Incorrect.** While Peroxide Jim’s presence was critical to saving the herd, the details in paragraph 11 and paragraph 16 do not focus on this idea. The primary idea is that the horse was so intelligent and aware that he acted on his own.

**F: Incorrect.** The excerpt does not tell who trained Peroxide Jim. It can be inferred that Peroxide Jim had been well trained and was knowledgeable of working cattle; however, there is no indication that Wade was the person who trained Peroxide Jim, only that Wade knew of Peroxide Jim’s abilities, respected the skilled horse, and was “saving this horse for emergency work” (paragraph 1). Because the reader cannot infer from the excerpt that Wade was the trainer, this idea cannot be considered central to the excerpt.

**H: Incorrect.** The sentence from paragraph 11 and the sentence from paragraph 16 show that Peroxide Jim acted skillfully and with the knowledge that the ride was dangerous (“Wade was riding for his life. He knew it. His horse knew it” [paragraph 11]). There is no indication that Peroxide Jim was not afraid; in fact, it is likely the awareness of the danger and the fear associated with that knowledge contributed to the horse’s motivation to turn the herd.

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**33.** The question asks what the phrase “bore down the flank of the herd” conveys about Wade.

**C: Correct.** The phrase “bore down the flank of the herd” conveys the overwhelming strength of the herd. The herd was forcing Wade toward the cliff. The wording in the quotation emphasizes the immediate danger of the situation and conveys the idea that Wade and Peroxide Jim were almost forced over the edge of the precipice by the stampeding herd.

**A: Incorrect.** While Wade struggled to see the front of the herd, the words “bore down the flank of the herd” are meant to convey the intensity of the situation Wade was in, not the way the herd is blocking his vision.

**B: Incorrect.** The sentence from paragraph 13 states that the herd was “close on their left” and includes the phrase “bore down.” Both of these phrases indicate that Wade was trapped between the stampeding herd and the steep cliff. Wade and Peroxide Jim were struggling to reach the very front of the herd to turn it away from the edge.

**D: Incorrect.** The phrase “bore down the flank of the herd” does not indicate anything about the fear felt by the herd. The phrase is about Wade’s position between the edge of the stampeding herd and the drop-off. Wade was aware of the danger the herd was in if he and Peroxide Jim could not turn the cattle from the edge.

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**34.** The question asks how the details in paragraphs 14–16 help convey a central idea of the excerpt.

**E: Correct.** Paragraphs 14–16 describe how Peroxide Jim’s “marvelous instinct” headed off the herd and drove it away from the cliff. Wade acknowledged that without his instruction, Peroxide Jim knew to find the leader of the herd, cut him off from the rest of the herd, and then lead him to safety, confident that the remainder of the herd would follow. Paragraph 16 confirms this: “Whose race was it? It was Peroxide Jim’s, according to Wade, for not by word or by touch of hand or knee had the horse been directed in the run.” This reinforces a central idea of the excerpt regarding the horse’s amazing intellect and ability.

**F: Incorrect.** Although paragraphs 14–16 mention the “rim,” the “cliffs,” and the “indescribably perilous path,” these details are not the focus of the paragraphs. They are descriptions of the setting where Peroxide Jim’s able and effective actions saved the stampeding herd, and it is these actions that are the central idea being conveyed.

**G: Incorrect.** Although Peroxide Jim is called “powerful” in paragraph 1, his physical strength is not a central idea of the excerpt nor the focus of paragraphs 14–16. His success at turning the herd was attributed to his intellect and instinct, not his physical strength.

**H: Incorrect.** The excerpt does not suggest that Peroxide Jim anticipated the herd’s stampede before the men did. In fact, the excerpt indicates that Wade led the men in singing to cover sudden noises that might cause the herd to stampede, indicating that Wade was alert to that possibility. Paragraph 7 also indicates that Wade anticipated the stampede, as he “checked his horse instantly” and tightened his “grip on the reins” as soon as he smelled the rain and heard the low rumble of thunder that preceded the lightning strike. The narrator notes Wade’s actions well before the horse’s actions. Paragraphs 14–16 describe how Peroxide Jim acted after the stampede began.

## A Memory Revolution

35. The question asks which sentence from the passage suggests that using Internet search engines may lead people to rely less on their own ability to recall information.

**C: Correct.** The sentence in paragraph 2 reveals the results of a study that allowed half the participants to use Google to obtain answers to trivia questions and initially required the other half to use only their memory to answer questions. The sentence states that “83 percent of the Internet group continued to consult Google in the second round” and that “only 63 percent of the memory group chose to do so.” These statistics demonstrate that using Google in the first round resulted in participants in the “Internet” group relying more heavily on the Internet search engine to recall information in the second round, whereas participants who did not use Google in the first round were more likely to rely on their own ability to recall information.

**A: Incorrect.** While the sentence in paragraph 1 refers to the increase in use that has made the Internet “an integral component” of everyday life for many people, it does not address memory or explain the effect of Internet use on a person’s ability to recall information.

**B: Incorrect.** Although the sentence in paragraph 2 refers to research that was conducted to determine how the use of the Internet affects a person’s memory, the sentence simply explains one guideline of the study. The fact that the study required one group of participants to use Google does not indicate whether using a search engine affects the degree to which people rely on their own ability to recall information.

**D: Incorrect.** The sentence in paragraph 3 compares the Internet to older resources, such as encyclopedias, that allowed people to access and retrieve large amounts of information. Although the sentence states that people have always used resources “to assist their memories,” it does not describe whether people mainly rely on their own ability or on the Internet to recall information.

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36. The question asks how the details in paragraph 3 about cognitive offloading convey a central idea of the passage.

**F: Correct.** A central idea of the passage is that the Internet is changing how people retain information. Paragraph 3 supports this idea by stating that “a similar process has been taking place for centuries” and that “in the past,” resources such as encyclopedias were used to store and find information. The details provided in paragraph 3 about encyclopedias and the Internet show that people have always used resources to remember information and that these resources change over time as people develop new ways to “assist their memories.”

**E: Incorrect.** Although paragraph 3 describes the Internet as “a vast extended memory,” it does not discuss reliance on the Internet for information. The paragraph states that the Internet “allows people to digitally access and retrieve much larger volumes of information” and indicates that this benefit leaves people free to focus on “connecting data, learning new information, or solving problems.” However, these details about the benefits of the Internet do not express an opinion about the inevitability of Internet reliance.

**G: Incorrect.** While paragraph 3 does compare the use of encyclopedias to obtain information in the past with the use of today’s Internet, this comparison fails to convey the central idea of the passage that the Internet is changing how people remember information.

**H: Incorrect.** Although paragraph 3 states that “much larger volumes of information” are available on the Internet than what has been available in previous methods of information storage, such as encyclopedias, this fact does not relate to an increase in the ability to understand that information and is not a central idea of the passage.

**37.** The question asks how the details of the experiment described in paragraph 5 convey a central idea of the passage.

**D: Correct.** A central idea of the passage is that the way the human memory stores information is changing because of the Internet. The details of the experiment support this idea by indicating that study participants remembered different amounts of information based on whether they “thought the information would be saved” (paragraph 5). Those who “believed the information would be erased and no longer available” (paragraph 5) remembered 40 percent more—almost twice as much—as those who expected to be able to access the information again in a saved computer file. Therefore, paragraph 5 conveys the central idea that the expectation of future access to information is a key element in “how people evaluate which information deserves their effort to remember” (paragraph 5).

**A: Incorrect.** Although paragraph 5 states that participants read the trivia facts and then “typed the statements into a computer file,” it does not explain the impact of repetition on memory, nor does it convey a central idea of the passage.

**B: Incorrect.** Paragraph 5 acknowledges that people evaluate which information is important enough to remember, but it does not describe the rate at which people forget unimportant information. According to the paragraph, information is considered less important to remember if a person believes that he or she will be able to retrieve that information easily in the future. This does not mean the information is unimportant but rather that it is readily available for future access.

**C: Incorrect.** Paragraph 5 specifies the number of trivia facts that study participants were given to read (forty), but it does not describe the amount of information as a factor in the participants’ memory performance. According to the paragraph, it was not the amount of information but rather the expectation of future availability that affected how much information participants were able to recall.

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**38.** The question asks how the study described in paragraph 6 influenced researchers’ ideas about memory in the digital age.

**G: Correct.** The study in paragraph 6 demonstrated that participants were better able to recall where to find certain information than to recall the information itself. This influenced researchers’ ideas about memory in the digital age: “Overall, participants recalled the information’s location more often than the content itself, correctly identifying 49 percent of the folders for specific facts while remembering only 23 percent of the actual trivia” (paragraph 6).

**E: Incorrect.** The study required participants to organize information into folders, but the results suggest that organizing the information did not make the information easier to remember; instead, participants remembered the folder in which to find the information but forgot the information itself.

**F: Incorrect.** Although the participants in the study were given a keyword, such as “ostrich,” when asked to remember “which folder contained a particular fact,” the study was significant for researchers because it demonstrated that “our memory is adapting to the Internet age by prioritizing where to locate information even when the specific details are forgotten” (paragraph 6).

**H: Incorrect.** The study did not examine the relative importance of remembering basic information or storing detailed information. It examined the effect of the Internet on the information that people remember and concluded that human memory “is adapting to the Internet age by prioritizing where to locate information” (paragraph 6).

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**39.** The question asks for the evidence from the passage that is most relevant to the claim in paragraph 7 that “far from making us stupid, these technologies are the only things that will keep us smart.’ ”

**B: Correct.** The assertion made in paragraph 3 that states that cognitive offloading allows for “people’s minds” to be “free for other cognitive feats, such as connecting data, learning new information, or solving problems” is relevant to the claim in paragraph 7 because it indicates that the ability to store large amounts of information within the brain does not necessarily make someone smart. It also suggests that if people did not have to use so much effort simply organizing and storing information, their brain would be free to conduct higher-order tasks: “the Internet, serving as a vast extended memory, allows people to digitally access and retrieve much larger volumes of information. Consequently, people’s minds are free for other cognitive feats, such as connecting data, learning new information, or solving problems” (paragraph 3).

**A: Incorrect.** Whether the participants decided to use the Internet to answer easy trivia questions varied based on the options that the participants were given during the first part of the experiment and, therefore, cannot be relevant to the claim in paragraph 7. Even when given the option of using the Internet, some participants chose to recall information from memory instead.

**C: Incorrect.** The discussion in the passage connecting how people organize information in their mind and their ability to recall that information focuses on the process of organizing information within human memory rather than on how technology helps keep people’s minds available for complex thoughts.

**D: Incorrect.** Although the passage provides an accurate description of transactive memory, it provides no indication of how using such memory would advance a person’s ability to maintain or improve intelligent thought.

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**40.** The question asks how the sentence in paragraph 7 contributes to the structure and development of ideas in the passage.

**G: Correct.** Paragraphs 2 and 6 describe the results of experiments related to the Internet’s effect on memory without commenting on the advantages or disadvantages of relying on that technology, and the sentence in paragraph 7 presents a doubtful viewpoint that moves away from the neutral perspective of the broader passage. The opinion in the sentence is directly argued against in the three sentences that follow it, which present an extended quote from Steven Pinker, a psychology professor at Harvard University. Pinker refutes the idea expressed by the sentence, stating that “knowledge is increasing exponentially; human brainpower and waking hours are not’ ” (paragraph 7). He adds that technologies such as the Internet “are the only things that will keep us smart’ ” (paragraph 7).

**E: Incorrect.** Although the studies showed, in part, that reliance on the Internet is increasing (“participants recalled the information’s location more often than the content itself” [paragraph 6]), the studies were not conducted in order to determine the risks of Internet use. The research described in paragraphs 2 and 6 did not prompt scientists to investigate the risks of relying on the Internet.

**F: Incorrect.** While the sentence in paragraph 7 poses a question about the disadvantages of relying on the Internet, paragraphs 2 and 6 present the study data on Internet use and memory in a neutral tone (“correctly identifying 49 percent of the folders for specific facts while remembering only 23 percent of the actual trivia” [paragraph 6]). Neither study describes the availability of information on the Internet as an advantage or a disadvantage.

**H: Incorrect.** Although the sentence in paragraph 7 expresses caution about the possible effects of the Internet on memory, the passage does not shift from an optimistic tone to a cautious tone. Actually, paragraph 6 provides the data on Internet use and memory in a neutral tone. And the last sentence of paragraph 7 includes a quotation that states, “Far from making us stupid, these technologies are the only

things that will keep us smart,' " which introduces a doubtful viewpoint to the passage. Additionally, the argument expressed by the sentence is not elaborated on in the sentences that follow; instead, the sentence is immediately argued against by the quotation from Steven Pinker, a professor of psychology.

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- 41.** The question asks how the studies presented in the passage are used to illustrate the effect of the Internet on a person's memory.

**A: Correct.** The study described in paragraph 5 examined the effect of computer use on the way people evaluate information, specifically "which information deserves their effort to remember," and determined that "those who believed the information would be erased and no longer available could recall 40 percent more facts than those who thought the information would be saved." The study described in paragraph 2 established that the use of Internet search engines increases the "inclination to rely on the Internet in order to retrieve information" (paragraph 3), and the study in paragraph 6 examined how this reliance on technology affects the way people store information: "Overall, participants recalled the information's location more often than the content itself."

**B: Incorrect.** Although a difference in the ability of the human brain and the capacity of the Internet to locate information might seem evident, the studies cited in the passage did not examine the ability or the capacity of either. The studies did not measure what the human brain is capable of but rather how memory is affected by the use of the Internet.

**C: Incorrect.** While the studies explored the Internet's effect on the way information is stored in human memory, the type of information was not described or compared. Instead, the studies indicated that location is the main difference between the information stored in the Internet and the information stored in human memory, noting that the Internet has become "an external source of the recollections and associative networks that constitute memory" (paragraph 6).

**D: Incorrect.** Although it is increasingly common to use the Internet to obtain information (paragraph 2) rather than try to memorize information (paragraph 5), the studies did not examine the difficulty or ease of obtaining/recalling information using either method.

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- 42.** The question asks how the diagram provides additional support for the topic presented in the passage.

**H: Correct.** The diagram depicts the connections that the human brain maintains between the different forms of memory. It also illustrates the idea that repetition and rehearsal are important steps in creating memories, as unrehearsed information will be forgotten. This supports the passage by highlighting the idea that access to search engines and other tools lead people to skip rehearsal and repetition steps that create memories because people know that the information is readily accessible.

**E: Incorrect.** While the diagram indicates that the human brain has the ability to maintain different types of memory, the diagram does not show the need for the brain to adapt in order to obtain information from other sources rather than from the Internet.

**F: Incorrect.** The diagram enhances the reader's understanding of how long-term memories are formed, but it does not provide details about how the Internet can be used to improve long-term recollection of information.

**G: Incorrect.** The diagram provides an understanding of how details that are important to people can become stored because of an effort made to recall them. However, the diagram does not show how people decide which information is important and which is not.

## Serpent Mound

43. The question asks how lines 1–2 contribute to the development of ideas in the poem.

**B: Correct.** The lines, with their mention of measuring tapes and sketchbooks, indicate that the reason the museum men came was to measure the mound and to draw sketches of it.

**A: Incorrect.** The idea that the men are too busy with their work to talk to the speaker is not conveyed in the poem, and, in fact, one of the museum men discusses the oval mound with the speaker (“as if swallowing the sun, one of the museum / men suggested” [lines 31–32]).

**C: Incorrect.** There is little indication in the poem that the museum men have a hidden motive for studying the mound. Lines 1–2 present a straightforward description of the men and their equipment, which emphasizes the men’s academic interest in studying the mound.

**D: Incorrect.** While the speaker displays some curiosity about the work the museum men are doing (“one of the museum / men suggested, taking notes with his quill pen, / an old-style inkhorn slung at his side. / I liked that” [lines 32–35]), lines 1–2 focus on introducing the idea that the mound is a formation that is worth formal study and examination by experts.

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44. The question asks what impact the words “*swish*,” “*chitter*,” and “*cry*” in lines 12–13 have in the poem.

**E: Correct.** The words highlight the sounds of the animals that visit the mound in the summer: the “*swish* of a beaver’s heavy tail” (line 12), the “*chitter* of a chickadee” (line 13), and the “*cry* of a hawk” (line 13). These words help contrast the quiet stillness of the setting around the mound in the winter.

**F: Incorrect.** While the words in lines 12–13 convey the sounds certain animals make in the summer, the sounds of the animals that live near the mound are a natural part of life in the area, not a disruption.

**G: Incorrect.** The speaker is contrasting the sounds of the animals around the mound during the rest of the year with the silence of the winter months, not merely indicating the variety of wildlife.

**H: Incorrect.** The speaker expresses the idea that the mound is more visible in the winter because of the lack of brush (“It being winter, / there was little underbrush to speak of” [lines 8–9]). Then lines 12–13 describe sounds, not the appearance of the mound in winter.

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45. The question asks which lines reveal how the setting affects the speaker and the men from the museum.

**C: Correct.** The imagery in lines 14 and 15 describes how the winter silence makes the speaker and the men feel emotional heaviness: it “pressed / down on all of us like a weight” (lines 14–15).

**A: Incorrect.** Although lines 7 and 8 do describe the setting, the lines do not describe how the setting affects the speaker and the men.

**B: Incorrect.** The words “being winter” (line 8) work to establish the setting, but lines 8 and 9 do not describe the effect the winter setting has on the speaker and the men.

**D: Incorrect.** Although the words “the humps in the ground were all but / invisible” (lines 16–17) describe how the setting appears to the speaker and the men, lines 16 and 17 do not describe how the setting affects them.

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**46.** The question asks what impact the phrases “all but / invisible” and “even less obvious” in lines 16–18 have on the meaning of the poem.

**E: Correct.** The words “all but / invisible” indicate that a person must be close to see the humps in the ground, while the phrase “even less obvious” indicates that a person must be far away to see the overall snake shape of the mound.

**F: Incorrect.** While the speaker has to lead the museum men to the mound because they did not know the exact location, the words in lines 16–18 are related to the difficulty in viewing the mound from the immediate surrounding area.

**G: Incorrect.** The speaker is willing to take the museum men out to study the mound, so there is no indication in the poem that the speaker wants the location of the mound to remain a secret. The words in lines 16–18 convey the idea that the mound is difficult to see.

**H: Incorrect.** While the speaker contemplates the significance of certain elements of the mound, the phrases in lines 16–18 relate to a viewer’s ability to see the physical shape of the mound, not its deeper meaning.

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**47.** The question asks how line 28 contributes to the development of ideas in the poem.

**C: Correct.** Line 28 introduces the presence of the oval mound at the mouth of the snake. The meaning of this oval is of great interest to the museum men and the speaker. Line 28 leads to the idea that there is speculation about the oval mound (“as if the snake were about to swallow an egg” [line 29], “as if swallowing the sun” [line 32], and “It is singing to the sun” [line 38]).

**A: Incorrect.** Although the museum men are documenting the shape of the mound in line 33, lines 29–32 and 35–41 focus on what the oval mound represents as interpreted by the museum men, the speaker, and the speaker’s sister.

**B: Incorrect.** While the lines preceding line 28 describe the body of the snake in detail (“you could climb / a tree and get some idea of the whole thing: / the serpent’s body undulating, slithering / silently across the ancient / earth” [lines 24–28]), the purpose of line 28 is to begin the development of the ideas about the oval shape at the end of the mound: the serpent’s mouth.

**D: Incorrect.** The speaker does not say that the oval shape near the end of the mound is difficult to see. Earlier, the speaker says that the ridges of earth are difficult to see unless you are near them, but the speaker does not say this about the oval shape.

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**48.** The question asks how the poet uses dialogue to contrast the points of view of the speaker and Ruth regarding the mound.

**H: Correct.** Beginning in line 37, after the speaker suggests the mound is swallowing the sun, Ruth disagrees. The poet uses the word “insisted” in line 39 to show that Ruth firmly believes in her own interpretation of the mound.

**E: Incorrect.** The interpretation Ruth offers of the mound as a snake singing is abstract, but Ruth does not seem to acknowledge that it is a metaphorical or figurative interpretation. The dialogue serves to highlight that Ruth is firm in her belief.

**F: Incorrect.** There is no indication that the museum men are considering Ruth’s interpretation of the mound. Ruth’s interpretation is meant to convey an abstract idea, while the museum men would be looking

for a firm academic explanation of the mound. Ruth is persistent in her belief, and the museum men's interpretation or findings are unlikely to change her perspective.

**G:** Incorrect. Ruth merely states her interpretation and says that she thinks she hears the Serpent Mound singing sometimes. She does not seek to make the speaker agree with her.

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**49.** The question asks how the poem's form contributes to the poem's meaning.

**A: Correct.** The poem is structured as one long stanza. The line lengths throughout the poem and the line indents (such as those in lines 7–10) create a visual effect so that the poem itself mimics the shape of the Serpent Mound.

**B:** Incorrect. The uneven line lengths in the poem do not indicate the different interpretations of the mound; separate stanzas or other stopping points would more effectively point to contrasting ideas.

**C:** Incorrect. The dashes in the poem lead to further explanation of a thought, not a change of thought.

**D:** Incorrect. The lack of regular rhyme and meter is intended to create a conversational tone rather than show the speaker's struggle to grasp how large the mound is.

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**50.** The question asks how the interaction between the speaker and Ruth in lines 37–41 conveys a central idea of the poem.

**F: Correct.** The interaction references Ruth's interpretation of the open-mouth shape as a serpent singing to the sun. This interpretation creates a joyful mood. The speaker contrasts this perspective with the idea that the mound is swallowing the sun, which creates a more aggressive feeling. These various interpretations of a physical shape arise out of what the individuals feel when they look at the mound.

**E:** Incorrect. While there are many different interpretations of the mound's meaning, there is no way to determine which of the interpretations is most accurate, and there is no way to know the mound's true purpose.

**G:** Incorrect. The speaker does not describe any benefit to considering what different people imagine when they see the mound. Instead, the speaker is simply describing different interpretations.

**H:** Incorrect. Ruth's interpretation of the mound's shape is fanciful and symbolic. It is unlikely scientific study would change the minds of people such as Ruth about the meaning of the mound.

### Massachusetts: Lowell National Historical Park

**51.** The question asks why the author includes the quotation from the Scottish traveler in the passage.

**C: Correct.** The quotation emphasizes the idea that the United States offers different attractions. The Scottish traveler highlights the two places in the United States that he will most remember. First, the beautiful natural formation of Niagara Falls ("the glory of American scenery") and, second, the industrial city of Lowell ("the glory . . . of American industry").

**A:** Incorrect. While it is likely that people outside the United States recognized that both the natural landscape and the bustling industry were significant, the quotation from the Scottish traveler is meant to convey the variety of the types of attractions in the US, not to make a general statement about their contribution.

**B:** Incorrect. The Scottish traveler mentions both “American scenery” and “American industry” in the quotation, but the intent is to highlight that they are each points of interest. The quotation does not provide a comparison of the two attractions.

**D:** Incorrect. The Scottish traveler mentions both “American scenery” and “American industry” in the quotation but does not imply that the natural resources contributed to the development of industry.

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**52.** The question asks for the sentence in paragraph 2 that best supports the idea that Lowell became “a bustling industrial city” (paragraph 1).

**H: Correct.** This sentence supports the idea that, within a few decades, the city’s mills employed “over 10,000 workers” in a mile-long stretch along the river. This sentence shows that the city was “bustling” and populated.

**E:** Incorrect. This sentence provides details on when the town of Lowell was founded and on the natural features of the area, but it does not support the idea that the city became “a bustling industrial city” (paragraph 1).

**F:** Incorrect. This sentence provides specific details about the how the mills worked and indicates that the mill buildings were a noticeable feature of the city. It does not refer to Lowell becoming “a bustling industrial city” (paragraph 1).

**G:** Incorrect. This sentence lists some recognizable mill buildings along the river and notes when their associated businesses were established. It does not refer to Lowell becoming “a bustling industrial city” (paragraph 1).

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**53.** The question asks which statement best describes how the sentence in paragraph 3 fits into the overall structure of the passage.

**A: Correct.** The sentence in paragraph 3 provides a transition from the overall description of the city and the mills to a description of the women who made up the workforce in the mills. The idea that women left domestic life in favor of working in the mills is important in the passage, and the sentence serves to connect that idea to the previous discussion about the mills.

**B:** Incorrect. While the mill girls’ dissatisfaction with their working conditions is addressed later in the passage (“These wage cuts, deteriorating working conditions, and long workdays led the ‘mill girls’ to protest and organize strikes” [paragraph 4]), the sentence in paragraph 3 does not indicate a shift in tone from positive to negative. The sentence provides a transition to the discussion of the women who worked in the mills.

**C:** Incorrect. Although the sentence in paragraph 3 mentions that women became interested in working in the mills because of the “constricted lifestyle of small rural towns,” structurally this sentence serves to provide a connection between the previous discussion of the mills and the women who made up the mill workforce. The sentence “Most were young single Yankee girls, who were tired of the limited opportunities offered by their domestic work” (paragraph 3) provides more detail about the circumstances that prompted women to leave their hometown.

**D:** Incorrect. The sentence in paragraph 3 focuses on the choices women made to leave rural towns to work in the city in the early to mid-1800s, not the mid-1800s to the late 1800s. The sentence does not create a comparison between the workforce in the mid-1800s and that in the late 1800s.

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**54.** The question asks for the sentence that best summarizes the mill girls' time as the dominant workforce in Lowell.

**H: Correct.** The details about the mill girls' time as the primary workforce in Lowell is outlined in paragraphs 3 and 4. These paragraphs explain how women initially were excited by the opportunity to live independently ("Women found that Lowell's mills offered monthly wages for their services and provided them room and board" [paragraph 3]). Over time, however, the working conditions changed and became unfavorable, leading the women to leave the industry when their calls for change were not addressed by mill owners ("When their demands went unheard, the women left Lowell, and immigrant groups replaced them in the workforce" [paragraph 4]).

**E: Incorrect.** While the passage explains that mill girls were initially eager to leave the domestic duties of life in rural areas, the summary sentence does not address the details about the mill girls' time working in the mills or the changes that led the mill girls to leave the industry.

**F: Incorrect.** Mill girls initially found satisfaction in the mill work and lifestyle, and when they did leave, immigrants filled the empty jobs. This summary sentence, however, does not address the details about the mill girls' time as the primary workforce in Lowell or the circumstances that led them to leave their jobs in the mid-1800s.

**G: Incorrect.** Mill girls did leave home to work in the Lowell mills, and they did grow dissatisfied over time, but this summary sentence does not include details about the mill girls' actions to improve the working conditions, and it incorrectly emphasizes the rigid boardinghouse rules as a key reason the mill girls were unhappy with their working conditions.

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**55.** The question asks how the sentence in paragraph 5 contributes to the development of ideas in the passage.

**B: Correct.** The sentence from paragraph 5 shows that early Irish immigrants were critical to the success of Lowell as an industrial city. This information supports the development of the idea that the work of Irish immigrants and immigrants from other places is an important element in the historical significance of industry in Lowell.

**A: Incorrect.** The sentence from paragraph 5 does not imply that Lowell was founded by early Irish immigrants. The sentence explains how Irish immigrants had been settling in Lowell since the city was established and that they contributed to the construction of the city, which allowed it to become an industrial center several decades later.

**C: Incorrect.** The sentence from paragraph 5 does not suggest that new Irish immigrants were readily accepted into the community. Paragraph 5 states that "initially, Lowell's Protestant community was slow to welcome Irish immigrants, but the hostility between Yankee Protestants and Irish Catholics eventually disappeared."

**D: Incorrect.** The sentence from paragraph 5 does not highlight the relationship between the mill girls and the new Irish immigrants. Paragraph 4 explains how the mill girls left Lowell, and paragraph 5 states that the mill girls were replaced by "predominantly Irish Catholics, who traveled to America during the Great Potato Famine" but does not discuss a relationship between them.

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**56.** The question asks which description conveys the central idea that Lowell was “one of America’s most significant industrial cities” (paragraph 1).

**G: Correct.** The details throughout the passage about the development of the mills and the people who worked in them conveys the significance of Lowell in early American industry. Paragraph 2 shares details about the businesses that started in the early 1800s and contributed to the development of industry in the region (“The most recognized of these buildings are the Lowell Manufacturing Company chartered in 1821, the Suffolk or Wannalancit Mill completed around the 1880s, the Boott Mill Company established in 1835, and the Boott Mill Boardinghouse that opened in 1838”). Then paragraphs 3–6 provide specific details about the people who worked in the mills at different points in time.

**E: Incorrect.** While the passage does state that the city’s canals, mills, and boardinghouses were built by early immigrants from Ireland, these details do not contribute to the development of the overall idea that Lowell was a significant industrial city.

**F: Incorrect.** The details about the women and immigrants who worked in the mills is important to the passage, but these details alone do not show that Lowell was a significant industrial city.

**H: Incorrect.** Although the passage references Lowell’s culturally diverse community (“Young Yankee women, immigrant families, and European tourists all flocked to Lowell to find work at one of the many textile mills” [paragraph 1]), these groups are not what marked Lowell as a significant industrial city.

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**57.** The question asks for the reason that best illustrates why Lowell lost its status as an industrial leader.

**C: Correct.** When Lowell was initially established, the mills in the city thrived because of their use of state-of-the-art manufacturing methods. However, manufacturing technology changed and improved over time. New manufacturing methods were more efficient, and many mill owners chose to close the mills rather than modernize them, and Lowell lost its status as a model of industry (“The city officially began to close down its mills in the 1920s and ’30s after Lowell’s outdated mills could no longer compete against the state-of-the-art cotton mills in other communities and working conditions continued to decline as Lowell’s companies stopped reinvesting in their mills” [paragraph 6]).

**A: Incorrect.** While the passage discusses the poor living and working conditions, these details highlight that mill workers had a difficult life and that mill work was no longer seen as a better job than farmwork or domestic duties. This is not the reason Lowell is no longer a “model of industry.”

**B: Incorrect.** Paragraph 5 in the passage acknowledges that there was some tension between the different ethnic and religious groups in Lowell, but this idea is not what led to Lowell’s decline as a “model of industry.”

**D: Incorrect.** The details about the temporary revival of the mills during World War II do not show why Lowell is no longer considered a “model of industry.” The mills were used briefly during wartime because of an increased need for supplies, but this use of the mills was short-lived.

- 58. (250)** Let  $x$  represent the number of two-door cars that will be sold next month. Use the information in the table to set up a proportion:

$$\frac{x}{1,000} = \frac{2,250}{9,000}$$

$$x = \frac{(2,250)(1,000)}{9,000} = \frac{2,250}{9} = 250$$

- 59. (13.5)** Let  $w$  represent the width of the actual garden. Set up a proportion based on the information given:

$$\frac{w}{9} = \frac{3}{2}$$

$$w = \frac{3(9)}{2} = \frac{27}{2} = 13.5$$

- 60. (12)** The greatest possible number of children in the class is the greatest common factor of 72, 60, and 84. Write the prime factorization of each number:

$$72 = 2^3 \times 3^2$$

$$60 = 2^2 \times 3 \times 5$$

$$84 = 2^2 \times 3 \times 7$$

Then, find the factors that all three have in common, which is  $2^2 \times 3 = 12$ .

- 61. (8)** Calculate simple interest ( $y$ ) by multiplying the initial deposit ( $p$ ) by the interest rate ( $r$ ) by the number of years ( $t$ ).

$$prt = y$$

$$900(0.05)t = 360$$

$$45t = 360$$

$$t = 8$$

**62. (7)**

$$\frac{(21)(14)x}{(49)(48)} = 0.875$$

$$\left(\frac{21}{49}\right)\left(\frac{14}{48}\right)x = 0.875$$

$$\left(\frac{3}{7}\right)\left(\frac{7}{24}\right)x = 0.875$$

$$\left(\frac{1}{8}\right)x = 0.875$$

$$x = (0.875)(8) = 7$$

- 63. (A)** Add the fractions to find the answer:

$$\frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$

- 64. (G)** Let  $x$  represent the distance, in kilometers, between Fran's house and Bryant State Park. Set up a proportion to solve for  $x$ :

$$\frac{x}{4.5} = \frac{3}{2} \quad \text{Cross multiply}$$

$$2x = 3(4.5) \quad \text{Apply the multiplicative inverse property; divide both sides of the equation by 2}$$

$$x = \frac{13.5}{2} = 6\frac{3}{4} \approx 7$$

- 65. (A)**  $2x + 4 = y$  Apply the additive inverse property; subtract 4 from both sides of the equation

$$2x = y - 4 \quad \text{Apply the multiplicative inverse property; divide both sides of the equation by 2}$$

$$x = \frac{y - 4}{2}$$

- 66. (E)** First, subtract Luis's time from Bryan's time:  $11.74 - 11.69 = 0.05$ . Then, convert to a fraction:  $0.05 = \frac{5}{100} = \frac{1}{20}$ .

**67. (B)**  $\frac{1}{4} : 2\frac{1}{2}$   
 $\frac{1}{4} : \frac{5}{2}$   
 $4\left(\frac{1}{4}\right) : 4\left(\frac{5}{2}\right)$   
 $1 : 10$

**68. (F)**  $n = 0.13 + \frac{207}{100} = \frac{13}{100} + \frac{207}{100} = \frac{220}{100} = \frac{11}{5}$

**69. (A)** Let  $x$  represent the length of one of the 10 remaining sides.  
 $25 + 35 + 10x = 100$   
 $60 + 10x = 100$   
 $10x = 40$   
 $x = 4$

**70. (E)** After Shioh-Chen draws a yellow card and a green card, the remaining cards are 3 green, 6 yellow, and 6 red. The probability of drawing a green card from that group is:

$$\frac{3}{3+6+6} = \frac{3}{15} = \frac{1}{5}$$

**71. (D)** Let  $n$  represent a number in the sequence, and let  $x$  represent the number that comes just before  $n$ .

$$n = 3 + 2x$$

$$93 = 3 + 2x$$

$$90 = 2x$$

$$45 = x$$

**72. (H)** Let  $d$  represent the distance between the two houses, in miles. Write a proportion to solve for  $d$ :

$$\frac{d}{5.4} = \frac{3}{2}$$

$$d = \frac{3(5.4)}{2} = \frac{16.2}{2} = 8.1$$

**73. (B)** The total number of degrees in a circle is 360. The measure of the angle between adjacent spokes is  $\frac{360}{15} = 24^\circ$ .

**74. (G)** First, find the value of  $m$  for each value of  $t$ .

For  $t = 1$ :

$$1m = 72$$

$$m = 72$$

For  $t = 2$ :

$$2m = 72$$

$$m = 36$$

For  $t = 3$ :

$$3m = 72$$

$$m = 24$$

Then, add those three values together:  
 $72 + 36 + 24 = 132$

**75. (C)** First, find the area of the rectangle, in square feet:

$$16 \times 8 = 128$$

Then, find the area of the triangle:

$$\frac{1}{2} \times 4 \times 16 = 32$$

To find the area of the shaded region, subtract the area of the triangle from the area of the rectangle:

$$128 - 32 = 96 \text{ sq ft}$$

- 76. (E)** Let  $x$  represent the number of gallons of orange juice. Since the shipment contains equal amounts of the two types of juice,  $x$  also represents the number of gallons of grapefruit juice. Write an equation to solve for  $x$ :

$$2x + 3x = 250$$

$$5x = 250$$

$$x = 50$$

- 77. (C)** Let  $n$  represent the least of the five numbers. Then the next four consecutive numbers are  $(n + 1)$ ,  $(n + 2)$ ,  $(n + 3)$ ,  $(n + 4)$ . Write an equation to solve for  $n$ :

$$n + (n + 1) + (n + 2) + (n + 3) + (n + 4) = 110$$

$$5n + 10 = 110$$

$$5n = 100$$

$$n = 20$$

- 78. (H)** Since  $m$  and  $n$  are positive, the value of  $mn$  is also positive. Of the five options given:

$-mn$  is negative.

$(-m)(-n)$  is positive.

$|mn|$  is positive.

$| -mn |$  is positive.

$|(-m)(-n)|$  is positive.

There are 4 expressions that are positive, and each one is equal to  $mn$ .

**79. (A)** 
$$\frac{5^4 \times 5^6}{5^2} = \frac{5^{10}}{5^2} = 5^8$$

- 80. (G)** First, find the number of peaches sold:

$$50 - (8 + 6 + 12 + 6) = 50 - 32 = 18.$$

Then, find the percentage:

$$\frac{18}{50} = 0.36 = 36\%$$

- 81. (B)** First convert 6 inches to 0.5 feet. Then, calculate the volume, in cubic feet:

$$0.5 \times 32 \times 20 = 32 \times 10 = 320$$

- 82. (G)** Let  $p$  represent the population of Waterville in 2006. The population per square mile is:

$$\frac{p}{50} = 1,500$$

Solve for  $p$ :

$$p = 1,500(50) = 75,000$$

The population decrease from 2005 to 2006 is  $84,000 - 75,000 = 9,000$ .

- 83. (C)** According to the number line,  $y - x = 4$  and  $x + y = 24$ . Add the two equations together and solve for  $y$ :

$$y - x = 4$$

$$+ x + y = 24$$

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$$2y = 28$$

$$y = 14$$

- 84. (F)** First, find the median of set N. There are 17 integers in set N, so the 9th integer is the median. The 9th integer is 14.

The least integer in set L is equal to the median of set N, so the least integer in set L is 14.

There are 25 integers in set L, so the median is the 13th integer. That integer is 26.

**85. (D)** The ratio of  $x$  to  $y$  is 1:2, so  $\frac{x}{y} = \frac{1}{2}$  or  $x = \frac{1}{2}y$ . Similarly, the ratio of  $y$  to  $z$  is 2:5, so  $\frac{y}{z} = \frac{2}{5}$ . Solve for  $z$  in terms of  $y$ :

$$5y = 2z$$

$$\frac{5}{2}y = z$$

Use the given sum of  $x$ ,  $y$ , and  $z$  to find the value of  $y$ :

$$x + y + z = 40$$

$$\frac{1}{2}y + y + \frac{5}{2}y = 40$$

$$4y = 40$$

$$y = 10$$

**86. (F)** The sum of 4 consecutive integers can be expressed as:

$$n + (n + 1) + (n + 2) + (n + 3)$$

$$= 4n + 6$$

Set that expression equal to each of the options and solve for  $n$ :

Option E:

$$4n + 6 = -12$$

$$4n = -18$$

$$n = -\frac{18}{4} \text{ is not an integer}$$

Option F:

$$4n + 6 = -10$$

$$4n = -16$$

$$n = -4 \text{ is an integer}$$

Option G:

$$4n + 6 = -8$$

$$4n = -14$$

$$n = -\frac{14}{4} \text{ is not an integer}$$

Option H:

$$4n + 6 = -4$$

$$4n = -10$$

$$n = -\frac{10}{4} \text{ is not an integer}$$

The only option for which  $n$  is an integer answer is -10.

**87. (C)** There are 5 stores where the video game is priced at \$10.99 and a total of 5 stores where it is priced at either \$12.99 or \$13.99, so the median price must be \$11.99.

**88. (F)** Solve  $xy = 30$ , the given equation, for  $x$ :

$$xy = 30$$

$$x = \frac{30}{y}$$

$$\text{Then } 10 \div x = 10 \div \frac{30}{y} = 10 \times \frac{y}{30} = \frac{1}{3}y$$

**89. (B)** First, find the lengths of the given segments:

$$QR = 5\frac{1}{6} - 3 = 2\frac{1}{6}$$

$$PQ = 3 - 1\frac{1}{3} = 1\frac{2}{3}$$

Then, find the difference:

$$2\frac{1}{6} - 1\frac{2}{3} = \frac{13}{6} - \frac{5}{3} = \frac{13}{6} - \frac{10}{6} = \frac{3}{6} = \frac{1}{2}$$

**90. (F)** Since the distance from W to X is 70% of the distance from W to Y, the distance from X to Y is 30% of the distance from W to Y. Let  $d$  represent the distance from W to Y. Then 15 miles is 30% of  $d$ .

$$0.30d = 15$$

$$d = \frac{15}{0.30} = 50$$

So, the distance from W to X, in miles, is  $50 - 15 = 35$

**91. (D)** Multiply the numbers of highways between each pair of cities:

$$3 \times 4 \times 3 = 36$$

**92. (G)** Take each ratio and solve for dogs:

$$\frac{p}{d} = \frac{4}{1}$$

$$4d = p$$

$$d = \frac{1}{4}p$$

And

$$\frac{d}{c} = \frac{3}{2}$$

$$d = \frac{3}{2}c$$

Set the two expressions for  $d$  equal to each other and solve for  $\frac{p}{c}$ .

$$\frac{1}{4}p = \frac{3}{2}c$$

$$p = 6c$$

$$\frac{p}{c} = \frac{6}{1}$$

So, the ratio of people to cats is 6:1.

**93. (B)** Let  $x$  represent the side length of square T, in centimeters. Then the side length of square S is  $(x - 1)$ . The area of square S is:

$$(x - 1)(x - 1) = 9$$

$$(x - 1)^2 = 9$$

$$x - 1 = 3$$

$$x = 4$$

So the side length of square T is 4 cm, and the area of square T is 16 sq cm.

The difference between the areas, in square centimeters, is  $16 - 9 = 7$ .

**94. (H)** If  $x$  is an odd number, then the next two odd numbers are  $(x + 2)$  and  $(x + 4)$ .

95. (A)  $\frac{1}{x} - \frac{1}{2x} = \frac{2}{2x} - \frac{1}{2x} = \frac{1}{2x}$

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96. (G) The total number of people who participated in the competition was  $1 + 5 + 10 + 4,984 = 5,000$ . The total number who placed first, second, or third was  $1 + 5 + 10 = 16$ .

$$\frac{16}{5,000} = \frac{32}{10,000} = 0.0032 = 0.32\%$$

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97. (B) Let  $A$  represent the measure of angle  $A$ , and let  $B$  represent the measure of angle  $B$ , in degrees. Since the angles are complementary,  $A + B = 90$ . The question states that  $B = 3A$ , or  $A = \frac{B}{3}$ . Substitute that expression for  $A$  in the first equation and solve for  $B$ .

$$A + B = 90$$

$$\frac{B}{3} + B = 90$$

$$\frac{4B}{3} = 90$$

$$4B = 270$$

$$B = 67.5$$

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98. (G) Let  $h$  represent the height of the tree in 2003. Then the height of the tree in 2013 is  $3h$ . Calculate the percent increase:

$$\frac{3h - h}{h} = \frac{2h}{h} = 2 = 200\%$$

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99. (B) If 1 gallon is equal to 16 cups, and 1 cup is equal to 8 fluid ounces, then

$$1 \text{ gallon} = (16)(8 \text{ fluid ounces}) = 128 \text{ fluid ounces}$$

$$128 = 2^7$$

$$1 \text{ gallon} = 2^7 \text{ fluid ounces}$$

$$\text{So, } x = 7.$$

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100. (H) The length of one side of the puzzle is  $\sqrt{64} = 8$  inches. The length of one side of the block is  $\sqrt[3]{64} = 4$  inches.

The ratio of the side of the puzzle to the side of the block is 8:4, which reduces to 2:1.

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101. (A) Let  $x$  represent Rosa's score on the third test, and let  $y$  represent her score on the fourth test.

$$\frac{81 + 83 + x + y}{4} = 85$$

$$164 + x + y = 340$$

$$x + y = 176$$

If Rosa scores 100 on the fourth test, then the least score she can earn on the third test is 76.

- 102. (H)** The fraction of the pizza that the Barnes family eats is  $\frac{11}{18}$ . Let  $x$  represent the number of slices of pizza that the Ramirez family eats. Then the fraction of the pizza that the Ramirez family eats is  $\frac{x}{15}$ . Write an inequality and solve for  $x$ :

$$\frac{x}{15} \leq \frac{11}{18}$$

$$x \leq \frac{11 \times 15}{18}$$

$$x \leq \frac{165}{18}$$

$$x \leq 9\frac{1}{6}$$

So, the greatest number of whole slices of pizza the Ramirez family can eat is 9.

**103. (D)**  $0^3 + 4^0 + 2^{-1} + (-1)^2$   
 $= 0 + 1 + \frac{1}{2} + 1$   
 $= 2\frac{1}{2} = 2.5$

- 104. (G)** First, find the number of comparisons. Let A, B, C, D, E, and F represent the 6 brands of soap. Then the comparisons are AB, AC, AD, AE, AF, BC, BD, BE, BF, CD, CE, CF, DE, DF, and EF. So, there are 15 comparisons. Multiply to find the total cost:
- $$15 \times \$2,000 = \$30,000$$

- 105. (D)** First, subtract the two fractions:

$$\frac{1}{10} - \frac{1}{20} = \frac{2}{20} - \frac{1}{20} = \frac{2-1}{20} = \frac{1}{20}$$

Then, divide the difference by 2 to find half the distance between the two fractions:

$$\frac{1}{20} \div 2 = \frac{1}{20} \times \frac{1}{2} = \frac{1}{40}$$

Finally, add the distance to the first point ( $\frac{1}{20}$ ) to find the halfway point:

$$\frac{1}{20} + \frac{1}{40} = \frac{2}{40} + \frac{1}{40} = \frac{2+1}{40} = \frac{3}{40}$$

- 106. (G)** First, change 6 feet to yards:

$$6 \text{ feet} \times \frac{1 \text{ yard}}{3 \text{ feet}} = 2 \text{ yards}$$

Then, multiply the dimensions of the pool to find the volume, in cubic yards:

$$20 \times 14 \times 2 = 560$$

- 107. (B)** First, list the products:

$$3 \times 4 = 12$$

$$3 \times 5 = 15$$

$$3 \times 6 = 18$$

$$3 \times 7 = 21$$

$$4 \times 5 = 20$$

$$4 \times 6 = 24$$

$$4 \times 7 = 28$$

$$5 \times 6 = 30$$

$$5 \times 7 = 35$$

$$6 \times 7 = 42$$

Of the 10 products, 3 are odd. The fraction is  $\frac{3}{10}$ .

- 108. (E)** A quotient of 10 with a remainder of 5 means the quotient is

$$10 + \frac{5}{25} = 10\frac{1}{5} = 10.20$$

**109. (C)** The perimeter (or circumference) of one of the three semicircles is  $\frac{1}{2}$  (diameter)  
 $\pi = \frac{1}{2}(2\pi) = \pi$ . Since there are 3 semicircles that make up the perimeter, the perimeter is  $3\pi$ .

**110. (E)** Each time Micha draws a card, the probability of drawing the number 5 is  $\frac{1}{5}$ . To find the probability of drawing the number 5 three times, multiply:

$$\frac{1}{5} \times \frac{1}{5} \times \frac{1}{5} = \frac{1}{125}$$

**111. (D)**  $\frac{10 \text{ meters}}{1 \text{ second}} \times \frac{3,600 \text{ seconds}}{1 \text{ hour}} \times \frac{1 \text{ foot}}{0.3 \text{ meter}} =$   
 $\frac{36,000 \text{ feet}}{0.3 \text{ hour}} = 120,000 \text{ feet/hour}$

**112. (H)**  $6.\overline{34} - 4.\overline{12} = 2.\overline{22} = 2.\overline{2}$

$x = 2.2222 \dots$  Set  $x$  equal to the repeating decimal  
 Multiply both sides by 10

$$10x = 22.2222 \dots$$

$-x = -2.2222 \dots$  Subtract  $10x$  and  $x$

$9x = 20$  Apply the multiplicative inverse properly, divide both sides by 9

$$x = \frac{20}{9}$$

**113. (C)** First, find the area of the rectangle in the graph:

$$3 \times 5 = 15$$

Then, find the areas of the two right triangles that are not shaded:

Upper triangle:

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

Lower triangle:

$$\frac{1}{2} \times 2 \times 5 = 5$$

The area of the shaded region, in square units, is calculated by subtracting the total area of the two right triangles from the area of the rectangle:

$$15 - (6 + 5) = 15 - 11 = 4$$

**114. (H)** Let  $w$  represent the number of additional white marbles.

Set the probability of drawing a white marble equal to  $\frac{3}{5}$  and solve the equation for  $w$ :

$$\frac{16 + w}{14 + 10 + 16 + w} = \frac{3}{5}$$

$$\frac{16 + w}{40 + w} = \frac{3}{5}$$

$$5(16 + w) = 3(40 + w)$$

$$80 + 5w = 120 + 3w$$

$$2w = 40$$

$$w = 20$$

### Answer Key for Sample Form B

1. D	14. E	27. D	40. G	53. A	66. E	79. A	92. G	105. D
2. H	15. B	28. E	41. A	54. H	67. B	80. G	93. B	106. G
3. A	16. G	29. B	42. H	55. B	68. F	81. B	94. H	107. B
4. F	17. A	30. F	43. B	56. G	69. A	82. G	95. A	108. E
5. D	18. F	31. D	44. E	57. C	70. E	83. C	96. G	109. C
6. G	19. A	32. G	45. C	58. 250	71. D	84. F	97. B	110. E
7. A	20. F	33. C	46. E	59. 13.5	72. H	85. D	98. G	111. D
8. G	21. B	34. E	47. C	60. 12	73. B	86. F	99. B	112. H
9. B	22. G	35. C	48. H	61. 8	74. G	87. C	100. H	113. C
10. F	23. D	36. F	49. A	62. 7	75. C	88. F	101. A	114. H
11. D	24. F	37. D	50. F	63. A	76. E	89. B	102. H	
12. H	25. A	38. G	51. C	64. G	77. C	90. F	103. D	
13. B	26. G	39. B	52. H	65. A	78. H	91. D	104. G	