

**2025 Form B  
EXPLANATIONS**

## READING COMPREHENSION

### Excerpt from "The Past and the Future of the Earth's Oldest Trees"

1. The question asks what the effect is of comparing groups of bristlecone pines to "a city within a cemetery" (paragraph 2).
  - A. Incorrect. The reference to "a city within a cemetery" describes how new trees use the remnants of their "ancestors" (paragraph 2) and makes no comment on the appearance of young versus mature trees.
  - B. **CORRECT.** The "cemetery" contains "the bones of their ancestors" (paragraph 2) —"ancestors" being earlier generations of bristlecone pines—which provide some of the nutrients that the new trees need.
  - C. Incorrect. The reference to "a cemetery" is not a comment on how long bristlecone pines can live; rather, it illustrates that the new pines are using remnants of their "ancestors" (paragraph 2) to grow.
  - D. Incorrect. Although the climate is mentioned in paragraph 2, it is not the reason for the comparison to "a city within a cemetery." The comment is intended to illustrate how the new trees use nutrients left behind by the old ones.

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2. The question asks how paragraph 4 **mainly** conveys the idea that the bristlecone pine can withstand difficult conditions.
  - A. Incorrect. While paragraph 4 does mention the bristlecone pine in conjunction with other long-living trees, this does not explain in any way how the bristlecone pine can survive difficult conditions.
  - B. **CORRECT.** Paragraph 4 mentions several qualities that help the bristlecone pine survive a difficult environment: it can survive in a "dry, cold climate" as few plants can, it tolerates a soil that is heavily alkaline and low in nutrients, and the density of its wood protects it from insects.
  - C. Incorrect. Paragraph 4 focuses on the qualities of the bristlecone pine that make it well suited to the White Mountains rather than on why the White Mountains are well suited to bristlecone pines.
  - D. Incorrect. While paragraph 4 does acknowledge that the bristlecone pine has few competitors because the pine can stand conditions few other plants can stand, it is the examination of the pine's unique qualities that explains how the pine survives those conditions.

3. The question asks how the first sentence of paragraph 5 contributes to the development of ideas in the excerpt.
- A. Incorrect. While “two-hundredths of an inch” is a reference to the bristlecone pine’s growth pattern, the point of the reference—and of the entire sentence—is to emphasize the incredibly slow pace of the pine’s life cycle.
  - B. Incorrect. While “wars raged” is a threat that empires face, the point of mentioning wars and the rise and fall of empires is to emphasize the bristlecone pine’s slow-paced life cycle by contrasting its slowness with the big, dramatic changes taking place in human history during that life cycle.
  - C. **CORRECT.** Making reference to huge changes in human history such as the rise and fall of empires and the raging of wars provides a sharp contrast to the incredibly slow growth of the bristlecone pine.
  - D. Incorrect. This sentence describes how slowly the bristlecone pine grows in contrast to how dramatically human history changes in the same time span but never explains the reasons for the pine’s longevity.
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4. The question asks which claim is **best** supported by the details about the bristlecone pine tree’s ring record presented in paragraph 5.
- A. Incorrect. In paragraph 5, the author explains that the bristlecone pine is “an exceptionally useful source of data about changing conditions on Earth,” and this suggests that the information presented by the trees is particularly valuable and important. However, while the paragraph explains that the data provided by the trees are important, it does not address the need to protect the trees from any threat of extinction. The only reference to the trees’ extinction is in paragraph 7, when the author addresses the “possibility that climate change will cause their extinction” but then explains that “scientists tend to discount the idea that the bristlecones are in immediate danger.”
  - B. Incorrect. Paragraph 5 describes “minute changes in the tree-ring record” that make bristlecone pines “an exceptionally useful source of data about changing conditions on Earth,” and examples of those changing conditions are described in the present tense: “When rains are heavier than normal, the rings widen.” However, the term “record” indicates that the tree rings are already formed by the time scientists study them. The trees provide information about the past, which is emphasized by the description at the beginning of paragraph 5 of historic events one tree lived through. The excerpt contains no information about whether scientists can use the climate patterns of the past as evidenced by tree rings to make predictions about the future.
  - C. Incorrect. Paragraph 5 describes the “slow-motion existence” of the bristlecone pine and provides examples of the record of “changing conditions on Earth” reflected in the rings of the trees. However, although the paragraph makes it clear that the trees have been able to survive these changing conditions, the paragraph does not indicate that the slow growth of the trees, each of which adds only “about two-hundredths of an inch to the diameter of its trunk each year,” is the key to their survival. Instead, paragraph 4 lists other reasons why an established bristlecone pine “can last almost indefinitely,” including distance between individual trees; tolerance for cold, dry conditions and dolomite soil; and bark that is resistant to insects.
  - D. **CORRECT.** Paragraph 5 emphasizes the longevity of the bristlecone pine by discussing its “implacable slow-motion existence” and how this makes the trees a valuable source of information for scientists. The author explains that “minute changes in the tree-ring record make bristlecones an exceptionally useful source of data about changing conditions on Earth.” A tree that has been alive since 2500 B.C., like the one in paragraph 5, can provide a long record of the changing climate.

5. The question asks what the phrases “clings to life” and “stripped of bark” in paragraph 6 are used to emphasize.
- A. Incorrect. While these two phrases are suggestive of the tree’s fragility, nothing in this paragraph suggests that the tree needs help to avoid extinction.
  - B. Incorrect. While the tree may be misunderstood to be dead because it is “stripped of bark,” the phrase “clings to life” emphasizes the fact that the tree is not dead but manages to survive.
  - C. Incorrect. The paragraph says that far from being interested in the tree’s unusual appearance, “most people march past it without giving it a second glance” (paragraph 6).
  - D. **CORRECT.** The phrase “clings to life” emphasizes that the tree is still surviving even though it is partially fossilized, as shown by its “marbled hulk stripped of bark” (paragraph 6).
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6. The question asks which central idea of the excerpt is supported by the details in paragraph 7.
- A. Incorrect. While paragraph 7 mentions the pines’ ability to survive climate change, the central idea is about the trees’ longevity. Surviving climate change is a part of the pines’ longevity, but just surviving climate change does not fully encompass the central idea of the excerpt.
  - B. Incorrect. Although the paragraph mentions that the “super-elderly trees” are each unique in appearance, their appearance does not directly connect to their ability to survive. The details in paragraph 7 emphasize the durability and longevity of the trees.
  - C. Incorrect. While the beginning of paragraph 7 expresses the idea that each bristlecone pine appears to be a unique individual and supports the idea that humans relate to the pines, the paragraph expresses a stronger central idea in the last two sentences about the pines’ survival.
  - D. **CORRECT.** The longevity of bristlecone pines is a central idea of the excerpt. Experts are encouraged that bristlecone pines have survived many catastrophes, and the details in the second half of paragraph 7 draw direct attention to the trees’ longevity.

7. The question asks for the **best** summary of the bristlecone pine's life cycle.
- A. Incorrect. Though the summary in this option covers key points in the life cycle, it focuses on minor details ("stubby seedling" and "alkaline soil") while leaving out major details of the life cycle (for example, the fact that parts of the trees become fossilized over time).
  - B. Incorrect. This option addresses the unique quality of the pine growing from "fragments of its dead ancestors"; however, it does not address the fossilization phase, which is a major part of the life cycle. In addition, this option incorrectly states that the tree continues to funnel nutrients to its stem.
  - C. **CORRECT.** The option describes the key phases of the pine's life cycle without focusing on minor details. The organization of the summary is chronological, and the information presented is accurate.
  - D. Incorrect. The option focuses more on the location and the appearance of the pine than on the phases of the pine's life cycle. The option contains an accurate description of the pine's appearance but provides little information about the main phases of its life cycle.
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8. The question asks how the author **mainly** conveys his point of view throughout the excerpt.
- A. **CORRECT.** The author clearly conveys his interest in and admiration of the bristlecone pine by sharing many details throughout the excerpt that show how unusual the tree is; these include details about the tree using remnants from previous generations (paragraph 2), details about the tree's "agonizingly" slow growth rate (paragraph 3), and details about the incredibly difficult growing conditions that the tree thrives in (paragraph 4).
  - B. Incorrect. While the author does briefly compare the bristlecone pine to global empires (paragraphs 1, 3, and 5), he mainly offers many details throughout the excerpt about what makes the bristlecone pine so unusual.
  - C. Incorrect. While paragraph 6 largely focuses on the contrast of the pine's sickly appearance with its ability to survive, this is just one detail about the pine that makes it unusual. The author offers many such details throughout the excerpt.
  - D. Incorrect. The author suggests in paragraph 7 that the bristlecone pine "may survive humanity," but this is just one detail about the bristlecone that the author offers in an excerpt full of details, each of which contributes to an understanding of how unusual this tree is.

## A Miracle Mile

9. The question asks how the words “feat,” “humanly impossible,” and “impenetrable barrier” in paragraph 1 affect the tone of the paragraph.
- A. Incorrect. Although paragraph 1 states that “several elite runners aimed to break that supposedly impenetrable barrier,” the words “feat,” “humanly impossible,” and “impenetrable barrier” suggest that the goal was unattainable even for the most skilled runners.
  - B. **CORRECT.** No one had ever been able to run a mile in less than four minutes, and the words “feat,” “humanly impossible,” and “impenetrable barrier” imply that the goal seemed unattainable. These words also reinforce the comparison of running a four-minute mile to “scaling Mount Everest” (paragraph 1).
  - C. Incorrect. The words “feat,” “humanly impossible,” and “impenetrable barrier” describe how challenging and almost impossible running a four-minute mile seemed, and while other elite runners “aimed to break that supposedly impenetrable barrier” (paragraph 1), the paragraph focuses on Roger Bannister, not the competition among elite runners seeking to break the record.
  - D. Incorrect. Bannister’s training program is described in paragraphs 3 and 4, and the words “feat,” “humanly impossible,” and “impenetrable barrier” are used in paragraph 1 to describe the magnitude of Bannister’s goal to run a four-minute mile. Though his training program was intense, these words relate to the intensity of the goal itself, not to the intensity of his training.
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10. The question asks how the sentences from paragraph 7 contribute to the development of ideas in the passage.
- A. **CORRECT.** The sentences from paragraph 7 show that toward the end of the race, Bannister knew that the goal of breaking the four-minute-mile barrier was within his grasp and that he had the focus necessary to achieve it. The sentence following Bannister’s quotation states that he did indeed meet his goal, crossing “the finish line in 3 minutes 59.4 seconds” (paragraph 7).
  - B. Incorrect. The feelings Bannister expressed in the sentences from paragraph 7 did not erase those feelings related to his loss at the 1952 Olympics, which were what drove him to the achievement he was about to make.
  - C. Incorrect. While the quotation states that Bannister felt “unity,” this pertains to his running, not to his work with the team. The sentences from paragraph 7 capture Bannister’s focus on his chance to break the barrier and what he was feeling at that moment.
  - D. Incorrect. The sentences from paragraph 7 express Bannister’s realization that he was on the verge of reaching a goal. The sentences show that in the seconds before crossing the finish line, Bannister was fully focused on the end goal and was not thinking about his training or his running technique.

- 11.** The question asks which sentence **best** supports the idea that Bannister needed an alternative to “logical planning” (paragraph 3) in order to accomplish his goal.
- A.** Incorrect. The outcome of the 1952 Olympics, referenced in the sentence from paragraph 2, is what prompted Bannister to seek a new goal: “Determined to redeem himself, Bannister . . . focused on the ultimate prize—breaking the four-minute-mile barrier” (paragraph 2).
  - B.** Incorrect. The sentence from paragraph 3 does not show an alternative to Bannister’s training plan to “develop endurance and speed” (paragraph 3) and his focus on using logical planning in order to accomplish his goal.
  - C.** Incorrect. The sentence from paragraph 4 focuses on details of his training plan, explaining the “intensive interval training” (paragraph 3) that Bannister used to build his endurance and speed, not an alternative form of preparation.
  - D. CORRECT.** The sentence from paragraph 4 explains that Bannister reached a point where he could not improve his time despite the strict training plan he had created. Taking a break from his training to spend time mountain climbing “permitted his muscles to recuperate and left him feeling refreshed” (paragraph 4).
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- 12.** The question asks which sentence indicates that Bannister nearly made a mistake that would have cost him the world record.
- A.** Incorrect. The sentence from paragraph 4 describes a challenge Bannister faced during his training period, when he used “intensive interval training to develop endurance and speed” (paragraph 3). Bannister ran laps on a “quarter-mile track” (paragraph 3) and was able to control his pace at this time—unlike during the actual race to break the record.
  - B.** Incorrect. The sentence from paragraph 6 describes the start of the race and Brasher’s role as “first rabbit” for Bannister. Bannister was behind Brasher, following their plan for breaking the record.
  - C. CORRECT.** If Bannister had begun running faster than the “steady but grueling pace” (paragraph 7) set by his “rabbit,” he would likely not have had enough energy to finish the race. As paragraph 6 notes, “the runner conserves about 15 percent of his or her effort” by allowing the rabbit to set the pace. Bannister had “lost his instinctive feel for his pace” (paragraph 7) in the excitement of the race. If he had given in to his impulse to run faster and bypassed the rabbit at that point in the race, it would have cost him energy, and, in turn, the record.
  - D.** Incorrect. The sentence from paragraph 7 describes how Bannister leaped ahead of Chataway, his second “rabbit,” at the appropriate time in the effort to break the record. Chataway had “surged forward, leading Bannister at this same punishing rate for another lap and a half” (paragraph 7) before Bannister moved past him.

- 13.** The question asks how Bannister’s loss in the 1952 Olympics influenced his decision to pursue breaking the four-minute-mile barrier.
- A.** Incorrect. While Bannister recognized the weaknesses that led to his poor performance in the Olympics and worked “to develop endurance and speed” (paragraph 3), the loss made him “determined to redeem himself” (paragraph 2). The desire for redemption influenced Bannister to focus specifically on running a mile in under four minutes, rather than on winning other races or training for other distances.
  - B.** Incorrect. Although Bannister developed an “intensive interval training” plan to improve his “endurance and speed” (paragraph 3), he applied a different approach only after his progress toward a four-minute mile reached a “plateau” (paragraph 4) in 1954. It was his desire to “shave off at least one more second in order to reach his target” (paragraph 4) that prompted him to take a break from interval training and go mountain climbing for three days.
  - C. CORRECT.** Bannister sought to redeem himself after “he finished in a dismal fourth place” at the Olympics (paragraph 2). He thought that his performance “was a disappointment for him and his country, Great Britain,” and he responded by setting a goal to successfully conquer the four-minute mile, which was considered the “ultimate prize” (paragraph 2).
  - D.** Incorrect. Bannister’s loss at the 1952 Olympics motivated him to change his training focus to reaching the “ultimate prize” (paragraph 2) of breaking the four-minute-mile barrier, which no other runner had accomplished. His loss at the Olympics did not present him with a specific opportunity to reach this goal.
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- 14.** The question asks how interval training affected Bannister’s performance.
- A.** Incorrect. The moderation of his pace was achieved through the use of “rabbits,” described in paragraph 6, more than through his method of interval training.
  - B.** Incorrect. Bannister worked individually during the interval training period and then paced himself with a two-person team of “rabbits,” which were introduced in paragraph 5 and explained in paragraph 6. It was the use of “rabbits” during the race that helped him conserve some of his effort, not the interval training.
  - C. CORRECT.** As paragraph 3 states, the goal of Bannister’s training program was to “develop endurance and speed,” which are synonyms of the words “stamina” and “pace.”
  - D.** Incorrect. Although Bannister “let his body recover for two minutes” (paragraph 3) during interval training, this was not the primary effect of the training on Bannister's performance. Instead, interval training allowed him to develop greater endurance and speed.

- 15.** The question asks how the author’s use of chronological structure contributes to the development of ideas in the passage.
- A.** Incorrect. While paragraph 4 mentions the “plateau” Bannister dealt with and the break that “permitted his muscles to recuperate,” the chronological structure of the passage focuses mainly on the progression of Bannister’s process over time.
  - B.** Incorrect. Even though the passage suggests that Bannister’s ability to break the four-minute-mile barrier improved and that he felt “prepared to attempt to break the world record” (paragraph 4), the chronological structure of the passage primarily serves to show how Bannister’s progress over time led to his success.
  - C.** Incorrect. The chronological structure of the passage begins with an acknowledgment that Bannister was inspired to break the four-minute-mile barrier by his loss at the 1952 Olympics (paragraph 2); however, the overall organization of the passage highlights his dedicated efforts over time to break the four-minute-mile barrier.
  - D. CORRECT.** The chronological structure of the passage follows the progression of Bannister’s training from his loss at the 1952 Olympics to the race where he ran the first sub-four-minute mile on May 6, 1954 (paragraph 5).

**Excerpt from *In Search of the Unknown***

- 16.** The question asks how paragraph 2 helps develop the plot.
- A.** Incorrect. As paragraph 1 indicates, writing such letters is one of the main parts of the narrator’s job (“and I was always busy, part of the day, in dictating answers to correspondents”), and he shows no indication of disliking this work. The letters are to inform people whether the zoo will accept their animals.
  - B.** Incorrect. Paragraph 2 indicates that the narrator offers his letters to the professor merely for official approval. At the start of the excerpt, the narrator is confident in his reply and does not anticipate that his response will differ from that of the professor, so he has no need to “predict what the professor would say.”
  - C. CORRECT.** The phrase “uncompromising refusals” in paragraph 2 indicates the confidence that the narrator initially has in his belief that the animals described in the letters are not of value to the society. This confidence is badly shaken as the plot unfolds, as when Professor Farrago states that “ ‘I am daring to believe that it *is* the great auk itself’ ” (paragraph 23). The narrator’s transition from an attitude of dismissive doubt to one of budding hopefulness is a major part of the plot (“But I was not shocked; on the contrary, I was conscious that the same strange hope that Professor Farrago cherished was beginning, in spite of me, to stir my pulses, too” [paragraph 34]).
  - D.** Incorrect. The narrator does not resent the professor’s review of the letters; instead, the phrase “of course” in paragraph 2 shows that he expects to submit the letters to the professor as part of his job.
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- 17.** The question asks what the phrase “a faint trace of apology” in paragraph 3 conveys about the professor.
- A.** Incorrect. The fact that the narrator had intended to leave the office for the day is not the source of the professor’s faintly apologetic manner, which is instead caused by the professor’s understanding that their conversation about the letter and the expedition is likely to cause an argument (“with a whimsical smile that suggested amusement, impatience, annoyance” [paragraph 3]). In paragraph 29, the professor asks the narrator if he can leave on an expedition that same evening, which indicates that the professor does not feel bad about taking up the narrator’s time after work.
  - B.** Incorrect. The paragraphs that follow the sentence from paragraph 3 show the professor sharing his opinions without pause, even when his opinion of the narrator is unflattering (“ ‘Like swimming squirrels, you navigate with the help of Heaven and a stiff breeze, but you never land where you hope to—do you?’ ” [paragraph 17]).
  - C.** Incorrect. The professor knows that the narrator will push back regarding the letter, but the professor is not uncomfortable challenging the narrator. Professor Farrago seems perfectly at ease and comfortable as he begins the discussion with the narrator.
  - D. CORRECT.** The professor is both amused and annoyed by the narrator’s dismissal of the possibility that great auks still exist, and the professor knows that the narrator is likely to react negatively to being sent on what the narrator considers a “fool’s errand” (paragraph 25).

**18.** The question asks how the exchange between the professor and the narrator in paragraphs 8–11 contributes to the development of the characters.

- A. CORRECT.** Paragraphs 8–11 help develop the characters by revealing the difference between the opinions of the narrator and the professor. The narrator believes without any doubts that Halyard, the man who wrote the letter about the auks, is either “ ‘a liar or a fool’ ” (paragraph 9), while the professor believes in the possibility that the writer of the letter could actually be telling the truth (“I said as much to Professor Farrago, but, to my surprise, he appeared to waver” [paragraph 8]).
- B. Incorrect.** In paragraph 8, the narrator reacts to the letter writer with "a contemptuous tolerance," and he is shocked to learn that the professor actually agrees with the man (paragraph 11) whom the narrator has bluntly condemned as a liar or a fool (" 'In my opinion,' said I, 'he's one or the other.' " [paragraph 10]). The exchange presents an emphatic disagreement between the narrator and the professor, and it does not show them working together in a collaborative manner.
- C. Incorrect.** Although the narrator initially distrusts the contents of the letter and shows “contemptuous tolerance for the writer” (paragraph 8), the excerpt portrays the professor as experienced and intelligent, not as one who is easily deceived.
- D. Incorrect.** While the narrator does begin to consider the professor’s perspective at the end of the excerpt, paragraphs 8–11 primarily serve to establish the difference of opinion between the narrator and the professor about the writer of the letter.

**19.** The question asks how the professor's observations in paragraphs 15–17 create tension in the excerpt.

- A. CORRECT.** The professor criticizes “ ‘you young fellows’ ” (paragraph 15), suggesting that the ideas of young scientists like the narrator are unsupported (“ ‘like swimming squirrels’ ” [paragraph 17]) and inaccurate (“ ‘but you never land where you hope to—do you?’ ” [paragraph 17] and “ ‘you embark on a theory for destinations that don't exist’ ” [paragraph 15]). The narrator then becomes “red in the face” (paragraph 18), indicating that the narrator is upset by the professor's criticism, and asks the professor about the great auk in an attempt to defend himself.
- B.** Incorrect. While the narrator does experience a negative reaction to the professor's words, the professor is being genuine, not sarcastic. In fact, the sarcasm comes from the narrator in paragraph 14 (“ ‘It is generally accepted,’ I replied, sarcastically, ‘that the great auk has been extinct for years. Therefore I may be pardoned for doubting that our correspondent possesses a pair of them alive’ ”), not from the professor.
- C.** Incorrect. The professor's observations cause the narrator to blush with embarrassment (“rather red in the face” [paragraph 18]), but the narrator understands the point that the professor is making about the narrator's acceptance of the idea that great auks do not exist. The narrator recognizes that the professor is criticizing his youthful ideas, not his opinion.
- D.** Incorrect. The professor shows amusement with the narrator's perspective. The narrator is embarrassed and upset by the professor's words, but the narrator does not display frustration with the professor's lack of interest in a commonly held view of the existence of a certain species of bird.

20. The question asks how the interaction between the narrator and the professor in paragraphs 26–28 contributes to the development of the theme.
- A. Incorrect. Paragraphs 26–28 do not show the narrator arguing against making the expedition. He instead argues that it is unnecessary for the professor to pay to send extra men on the expedition. The narrator points out that he can ask for assistance if he does, in fact, find great auks (“ ‘None,’ I replied, bluntly; ‘it’s a useless expense, unless there is something to bring back. If there is I’ll wire you, you may be sure’ ” [paragraph 28]).
  - B. Incorrect. When the professor criticizes the narrator’s blind acceptance of the theory about the existence of the auks, the narrator is frustrated and embarrassed. This frustration does not stem from his inability to make decisions for the zoological society.
  - C. Incorrect. The professor states that “ ‘what I want you to do is to get those birds here safely’ ” (paragraph 27), which indicates that his main priority is the birds’ safety rather than acquiring specimens regardless of the consequences (i.e., at any cost).
  - D. **CORRECT.** Paragraph 26 describes the professor and the narrator making practical plans for the expedition (“we made out a list of articles necessary for me and itemized the expenses I might incur”), indicating the narrator’s acceptance of his assignment while also revealing that he does not anticipate a “successful termination to the expedition.” Paragraph 28 further describes the personal objections of the narrator, who believes that adding extra men to the expedition is pointless (“ ‘a useless expense’ ”), since he does not expect to find any great auks to bring back.
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21. The question asks which sentence from the excerpt **best** explains why the professor is eager to send the narrator on an expedition.
- A. Incorrect. In the sentence from paragraph 25, the narrator suspects the professor is losing his ability to reason because his request (to secure the great auk for the society) seems impossible. The professor is excited about the discovery, but the narrator doubts whether the discovery is real. The sentence does not explain why the professor is excited, however.
  - B. Incorrect. Paragraph 26 shows the professor and the narrator planning the logistics of the trip, but it does not explain why the professor is eager to send the narrator on the expedition.
  - C. Incorrect. Although the sentence from paragraph 27 expresses the professor’s interest in having the narrator bring the birds back safely, it does not show the underlying reason why the safety of the birds is so crucial, which is that the great auk is extremely rare.
  - D. **CORRECT.** The sentence from paragraph 33 reveals the professor’s excitement to get “ ‘the rarest of living creatures,’ ” the great auk. In paragraph 14, the narrator states that “it is generally accepted . . . that the great auk has been extinct for years,” which would make a living auk incredibly rare and explains the professor’s eagerness for the narrator to go on the expedition.

22. The question asks how paragraph 34 helps develop the plot of the excerpt.

- A. **CORRECT.** Despite his initial disbelief, the narrator admits in paragraph 34 that he is starting to feel the “same strange hope” the professor feels, which is to find the great auks (paragraph 33).
  - B. Incorrect. While the narrator does make an effort in paragraphs 11–22 to understand the professor’s thinking, paragraph 34 reveals that the narrator has been affected by the professor’s “strange hope” for the auks and is beginning to share this hope “in spite of” himself.
  - C. Incorrect. The narrator describes a feeling of hope in paragraph 34 that would not be present if he had simply been overruled by the professor and did not share any of the professor’s belief in the possibility that the auks exist. In addition, it was established before paragraph 34 that the narrator was willing to be overruled (“I drew a chair up beside his desk—there was nothing to do but to obey, and this fool’s errand was none of my conceiving” [paragraph 25]).
  - D. Incorrect. The narrator does not express a sense of urgency in paragraph 34 to complete the expedition. Instead, he expresses hope that the great auks might really exist.
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23. The question asks which sentence **best** demonstrates the professional relationship between the narrator and the professor.

- A. Incorrect. Although the professor’s handing of the paper to the narrator indicates that they are beginning to discuss the letter about the great auk, the sentence from paragraph 4 does not convey the relationship between a subordinate employee (the narrator) and a superior (the professor).
- B. Incorrect. The sentence from paragraph 24 presents the narrator’s immediate internal reaction to the professor’s words. The sentence emphasizes that the professor’s belief in the great auk’s existence is so outrageous that the narrator initially thinks the professor is starting to lose touch with reality. This is a momentary reaction to the professor’s words, not a demonstration of the professional relationship between the two.
- C. **CORRECT.** The sentence from paragraph 25 reveals that while the narrator disagrees with the professor (“this fool’s errand was none of my conceiving”), he obeys because he works for the professor (“there was nothing to do but to obey”).
- D. Incorrect. The professor’s good-humored offer of assistance in the sentence from paragraph 29 does not best demonstrate the underlying employer-employee relationship between the professor and the narrator. The narrator has to go on the expedition because the professor, his boss, told him to.

24. The question asks how the author develops the contrast between the narrator's point of view and the professor's point of view.
- A. Incorrect. The excerpt does not describe the narrator's thoughts about how age and experience influence the professor's reasoning in enough detail to fully contrast them against the thoughts about the narrator that the professor expresses in paragraphs 15–17. The narrator's idea that the professor might be "on the verge of dotage" (paragraph 24) is meant in a humorous way.
  - B. **CORRECT.** The primary conflict of the excerpt revolves around the narrator's disagreement with the professor about whether the letter about the great auks could be true. As the two men converse, their contrasting attitudes toward the letter become clear: the narrator dismisses the possibility of great auks out of hand (" 'of course the man is mistaken' " [paragraph 5]; " 'here is a man . . . who wants you to send somebody to take charge of a bird that doesn't exist!' " [paragraph 12]), while the professor calmly admits that although " 'nine hundred and ninety-nine men in a thousand would throw that letter aside and condemn the writer' " (paragraph 9), he himself believes that the writer could be telling the truth (" 'How do you know,' asked Professor Farrago, 'that the bird in question does not exist?' " [paragraph 13]).
  - C. Incorrect. The professor explains why he disagrees with the narrator (paragraphs 19–21), but he does not make persistent efforts to convince the narrator to change his mind about the letter. Instead he states that the narrator will go on an expedition to retrieve " 'whatever it is that our correspondent has' " (paragraph 23), thereby requiring the narrator to go collect the great auks whether the narrator believes in them or not.
  - D. Incorrect. The point of the dialogue is not to explain the subordinate-supervisor relationship between the narrator and the professor but rather to contrast what each character believes about the contents of the letter.

## Looking for the Smallest Spark of Everything

25. The question asks what lines 5–8 reveal about the speaker to help develop a central idea of the poem.
- A. 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).
  - B. **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.
  - C. 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.
  - D. 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).

- 26.** The question asks what the comparison in lines 23–24 of the poem is mainly meant to show.
- A.** 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.
  - B. CORRECT.** Lines 23–24 describe “tiny cars / flashing along at close to the speed of light,” which describes how the particles move.
  - C.** 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).
  - D.** 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.

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

- A. 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.
- B. 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
- C. **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.
- D. 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.

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

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

- A. 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.
- B. **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).
- C. 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).
- D. 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.

**30.** 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.

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

- A.** 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.
- B.** 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.
- C. 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.
- D.** 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.

## Using Fire to Keep a Prairie Healthy

- 32.** The question asks how observing the effects of the fires started by natural causes prompted American Indians to begin practicing controlled burns.
- A. CORRECT.** In paragraph 2, the author states that American Indians observed bison “grazing on tender new grass on the recently burned land rather than on grass in the unburned areas.” These observations prompted the practice of controlled burns as a means of enticing “the herds away from the people’s crops.”
  - B.** Incorrect. Although the author mentions in paragraph 4 that the primary targets of a controlled burn are red cedar trees and that “these tall trees also cast shade that prevents sunlight from reaching the plants beneath them,” this detail supports why conservationists use controlled burns today, not what initially prompted the use of controlled burns.
  - C.** Incorrect. While the author states in paragraph 3 that “the process of burning excess plant matter adds nitrogen, an essential element for plant growth, to the soil” and that “intentionally burning a portion of land can dramatically improve the quality of the vegetation that regrows there,” these details do not explain the initial observations that prompted American Indians to practice controlled burning.
  - D.** Incorrect. While paragraph 2 mentions that bison moved to a new area to graze because they preferred the “tender new grass on the recently burned land,” there is no indication in the passage that bison changed their migration habits in order to flee wildfires.
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- 33.** The question asks how targeting red cedar trees in controlled burns affects the animals that live on the prairie.
- A. CORRECT.** According to information in paragraph 4, targeting invasive red cedar trees with controlled burns affects animals that live on the prairie by ensuring that these trees do not “crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home.” The paragraph also states that each red cedar tree consumes “up to 40 gallons of water per day, taking this vital resource away from other plant life.” Removing red cedars thus increases the amount of water available to the prairie grasses and helps maintain favorable conditions for the animals’ main source of food.
  - B.** Incorrect. Although the author mentions the potential danger to wildlife from an uncontrolled burn in paragraph 5, the author emphasizes that patch burning “allows animals in the burn area to safely relocate.” Therefore, the animals that live near trees scheduled for removal are not endangered by the controlled burns.
  - C.** Incorrect. In paragraph 4, the author states that “a single red cedar tree can consume up to 40 gallons of water per day, taking this vital resource away from other plant life.” However, the author does not suggest that reducing the number of red cedar trees through controlled burns ensures a sufficient water supply for animals that live on the prairie.
  - D.** Incorrect. In paragraph 4, the author states that “these tall trees also cast shade that prevents sunlight from reaching the plants beneath them.” However, the author does not suggest that using controlled burns to eliminate red cedar trees reduces a natural source of shade for prairie animals. The red cedar trees are invasive; therefore, the author does not consider them a “natural” part of the prairie ecosystem.

**34.** The question asks what the author intends to show by using the second sentence in paragraph 6 in the passage.

- A.** Incorrect. Although the author refers to the conservationists as “experts” in paragraph 5 and states that conservationists “provide training to prairie farmers” (paragraph 6), the second sentence in paragraph 6 does not imply that the conservationists are better qualified to lead preservation efforts than farmers are. Instead, the sentence shows that conservationists believe that prairie farmers are capable of performing the controlled burns that contribute to overall conservation efforts.
- B. CORRECT.** The conservationists are eager to involve others in the preservation of the prairie, because “studies show that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out” and that the process has “helped the prairie sustain life for hundreds of years” (paragraph 6). The second sentence in paragraph 6 describes how conservationists are sharing their knowledge about preservation techniques with people who live on the prairie.
- C.** Incorrect. Although the author points out in paragraph 6 that “studies show that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out,” the idea that controlled burns may help restore the original biodiversity of the prairie is not the focus of the second sentence in paragraph 6, which notes only that conservationists are providing training to farmers about controlled burns.
- D.** Incorrect. The author mentions in paragraph 6 that the patch-burn system has been “successful” and suggests in the last sentence of the paragraph that the use of controlled burns will continue to benefit the prairie ecosystem. These details imply that this system will continue to be used and may even become more widespread. However, the second sentence in paragraph 6 merely describes a patch-burn training program that already exists and does not suggest that this program should serve as a model for other organizations.

35. The question asks which details from the passage **best** convey the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
- A. Incorrect. The author explains in paragraph 5 that “patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate.” This explanation conveys two supporting ideas: the patch-burn method is controllable, and patch-burn fires do not pose a threat to animals. However, this explanation does not address the broader central idea that the patch-burn method is an effective way to protect and manage prairie land.
  - B. Incorrect. In paragraph 5, the author states that “the key to using controlled fires is knowing which areas of land to burn and when.” The author then provides information about how conservation experts “study the land to find out which areas would most benefit from being burned.” However, these details convey supporting ideas rather than the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
  - C. **CORRECT.** In paragraph 3, the author states that “fires burn away weedy undergrowth and help limit the overcrowding of shrubs and trees in the burn area, creating less competition for water and nutrients.” Also, in paragraph 6, the author states that patch burning “has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out.” These details directly convey the central idea that using the patch-burn method is an effective way to protect and manage prairie land.
  - D. Incorrect. The author explains in paragraph 5 how conservationists “arrange about a dozen burns over one-third of the land,” which helps show how the patch-burn method is applied by conservationists. However, this is a supporting detail that conveys the idea that the burns are deliberately set and carefully controlled. This detail does not convey the central idea that using the patch-burn method is an effective way to manage and protect prairie land.

- 36.** The question asks which sentence supports the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land.
- A. CORRECT.** The sentence from paragraph 1 supports the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land because it acknowledges that “one of the greatest threats to the prairie is wildfire.”
  - B.** Incorrect. Although the sentence from paragraph 2 relates how American Indians “began to deliberately burn areas of land for bison to graze on” and to protect people’s crops, the sentence does not support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land. Instead, it focuses on the cause-and-effect relationship between bison and newly burned areas.
  - C.** Incorrect. The sentence from paragraph 5 provides details about how “patch burning contains the fire” and “allows animals in the burn area to safely relocate,” but it does not adequately support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land, because it does not mention that wildfires can be a threat to the prairie.
  - D.** Incorrect. While the sentence from paragraph 5 does explain how “conservationists will burn a different section of the preserve” in order to rotate the process year after year so that the burned land has time to regrow, the sentence does not support the idea that farmers and people who manage land may be concerned about using fire as a way to benefit the land because it does not mention the potential for total burns.

37. The question asks which idea the words “counterintuitive” and “strategic” convey in the last sentence in paragraph 6 in the passage.
- A.** Incorrect. Though the author states in paragraph 6 that conservationists have used safe and “strategic” methods, those methods have not been ineffective, since “the patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers about conducting controlled burns on their own land” (paragraph 6). Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that the safest methods are sometimes the least effective at solving complex challenges.
- B.** Incorrect. Although the author points out in paragraph 6 that researchers’ studies have shown “that the patch-burn approach has restored biodiversity to the area by promoting the growth of species that were at risk of being crowded out,” the author does not suggest that the methodologies conservationists used to conduct the patch burns are uncommon, since the methods were used by “the American Indian people [who] began to deliberately burn areas of land for bison to graze on” (paragraph 2). Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that thorough investigation of uncommon methodologies can lead to beneficial results.
- C. CORRECT.** In paragraph 1, the author states that “one of the greatest threats to the prairie is wildfire,” so the idea of conducting controlled burns suggests risk and runs “counter,” or contrary, to people’s common expectations, or “intuition,” about the dangers of fires. Thus, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 convey the idea that detailed planning can ensure that a potentially destructive action has a positive impact.
- D.** Incorrect. The author states in paragraph 6 that “the patch-burn system is so successful that the conservationists at the preserve provide training to prairie farmers.” This statement supports the idea of the action being “strategic” in order to achieve success. However, the statement does not suggest that because the process is “counterintuitive,” or unexpected, it involves a certain amount of risk to achieve that success. Therefore, the words “counterintuitive” and “strategic” in the last sentence of paragraph 6 do not convey the idea that plans that entail a certain amount of risk almost always result in success.

- 38.** The question asks with which statement the author of the passage would **most likely** agree.
- A.** Incorrect. In paragraph 5, the author states that “patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate,” and paragraph 6 states that conservationists “provide [important] training to prairie farmers about conducting controlled burns on their own land.” However, the author does not explicitly take a position about the importance of explaining the purposes and the risks of controlled burns to the people living near a proposed burn area. Therefore, the evidence in the passage does not strongly suggest that the author would agree with this statement.
  - B. CORRECT.** In paragraph 5, the author points out that conservationists “study the land to find out which areas would most benefit from being burned, and then they arrange about a dozen burns over one-third of the land” and “rotate which portion of land is burned each year” so that animals, such as bison, can “safely relocate.” Therefore, the author would most likely agree that it is necessary to thoroughly examine a particular region in order to plan and execute a successful controlled burn.
  - C.** Incorrect. The author of the passage would be unlikely to agree that monitoring animals’ reactions after a controlled burn on the prairie is a minor part of scientists’ research. In paragraph 5, the author explains that patch burning “allows animals in the burn area to safely relocate” and that conservationists “burn a different section of the preserve” each year to ensure that animals have an abundant area to graze while other areas are being burned.
  - D.** Incorrect. According to the information in paragraph 4, conservationists commonly target invasive red cedar trees because they are tall trees that “crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home.” Since the focus is on the harm that the invasive red cedar can cause, the author would be unlikely to agree that conservationists should consider the helpful aspects of invasive species before executing a controlled burn.

**39.** The question asks how the diagram and its text provide additional support for the topic presented in the passage.

- A. CORRECT.** The text of the diagram states that “by using a patch-burn method, conservationists and farmers can reduce the risk of unintentional fires and control where grazing animals, such as bison, roam.” By showing the pattern of controlled burns and the resulting bison migration in a given area, the diagram depicts how the landscape changes as the patch-burn method is applied.
- B.** Incorrect. Although the text mentions areas “where grazing animals, such as bison, roam,” the diagram does not depict distinctive features of the land such as trees or brush and therefore does not indicate that patch-burn fires are best suited for use in areas with certain features.
- C.** Incorrect. While the text mentions “grazing animals, such as bison” and the diagram shows the bison grazing in only one area, the diagram and its text do not indicate that the patch-burn method is used on uninhabited land.
- D.** Incorrect. While the areas of land depicted in the diagram do indicate that the sizes of the areas differ, the text provided does not compare the sizes of the areas burned by the patch-burn method with those of unburned areas or indicate that this factor is important in reducing the risk of uncontrolled fires or controlling “where grazing animals, such as bison, roam.”

## Letter from Brooklyn

40. The question asks how the structure of the poem affects its meaning.
- A. Incorrect. Though the poem lacks a rhyming pattern, such a structure is not related to the uniqueness of the passing days. The speaker is savoring “the early edge of fall” (line 7) and describes walks taken on “these days” (line 17), but the beauty the speaker appreciates is attributed to the fall season rather than to a unique day. Further, the poem is primarily concerned with broad seasonal shifts, not the passing of each day, and the absence of rhyme does not suggest that each day is unique in its beauty.
  - B. Incorrect. The poem includes both long sentences (such as the one in lines 7–12) and short sentences (such as those in lines 5 and 6). However, the sentence lengths are not connected with the complexity of the ideas expressed.
  - C. Incorrect. A complete sentence serves to present the beginning and the end of a single thought, but the poem is not primarily concerned with the speaker’s thoughts on the “clear beginning and ending of each season.” Though it contrasts the speaker’s feelings and experiences during different seasons, the poem does not present descriptions focused specifically on the beginnings or ends of these seasons.
  - D. **CORRECT.** Unlike poems that are broken into stanzas reflecting unified groups of thoughts, this poem is one long stanza. This structure serves to emphasize the uninterrupted flow of the speaker’s thoughts from time to time and experience to experience without a clear break between any specific thoughts.
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41. The question asks which lines from the poem support the idea that a change in the weather will lessen the speaker’s appreciation for the city.
- A. Incorrect. These lines focus on the positive way the air feels to the speaker during “the early edge of fall” (line 7). They suggest that the speaker appreciates this experience currently, while being aware that the feeling might not last.
  - B. **CORRECT.** In these lines, the speaker describes the shift in the “closeness” of the air as the weather changes and “it starts darkening at 4.” The speaker clearly indicates that the positive emotions surrounding this closeness, with “leaves green still” and the air “slightly crisp” (lines 8–9), will soon be “a felt distance,” suggesting that the turn in the weather will make the city less appealing.
  - C. Incorrect. Although these lines compare the darkening, changing weather to a person revealing a “lack of intimacy,” that specific comparison does not focus on a diminishing appreciation for the city.
  - D. Incorrect. These lines describe the “cathedral pace” (line 17) at which the speaker walks, emphasizing a meditative or thoughtful experience. Such a description suggests the speaker still appreciates the city, not that the speaker’s appreciation will lessen.

42. The question asks how lines 5–6 develop a central theme of the poem.

- A. Incorrect. In this poem, the speaker describes the impressions of one day in one season: “For now it is the early edge of fall, / leaves green still while the air narrows, / is slightly crisp” (lines 7–9). Despite the reference in line 5 to the eventual arrival of cold weather, lines 5–6 primarily emphasize the speaker’s wish to stay focused on the present moment. A contrast between seasons is not a central theme of the poem.
  - B. Incorrect. The words “The weather will turn cold” in line 5 refer to one change that is expected to occur, but lines 5–6 do not show a sequence of changes. The line that follows returns to the present: “For now . . .” (line 7).
  - C. Incorrect. Although the statement that the weather “will turn cold” in line 5 could be construed as a warning, there is no support in lines 5–6 for the idea that some problems require thoughtful preparation. The speaker is reflecting on a fleeting experience, not preparing to solve a problem.
  - D. **CORRECT.** Immediately after the line “The weather will turn cold” (line 5), the speaker returns to the current moment: “But that all happens later” (line 6). These lines help develop a central theme by emphasizing the speaker’s choice to value and focus on the present moment. The “But” at the start of line 6 shows the speaker pulling back from the future and refocusing on the present, thus emphasizing the importance of savoring “the moment I am walking inside of” (line 22).
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43. The question asks what belief of the speaker is conveyed by the word choice in lines 7–9 of the poem.

- A. **CORRECT.** Words and phrases in these lines, such as “leaves green still” and “slightly crisp,” have a positive connotation, indicating that the speaker believes in appreciating this season while it still lasts.
- B. Incorrect. Although imagery such as “leaves green still” and “slightly crisp” in these lines suggests that the speaker enjoys the season, the speaker never indicates that the present season is the most pleasant of all seasons.
- C. Incorrect. The phrases “the early edge of fall” and “the air narrows” in these lines imply that the season is just beginning to change, but there is no indication from these phrases that the changes will be swift and without warning. In fact, the narrowing of the air could be a warning of a greater, more gradual change in weather.
- D. Incorrect. The speaker experiences the change in weather as subtle: “the air narrows, / is slightly crisp.” However, the speaker does not refer to the viewpoints of others. The entire viewpoint in the poem is personal and introspective, as represented by the use of the pronoun “I” throughout.

44. The question asks how lines 9–12 convey a central idea of the poem.
- A. Incorrect. Although the speaker discusses the very beginning of cool weather in these lines, the speaker does not reflect on life in these lines.
  - B. Incorrect. Although the description in these lines likens the movement of crisp air to “a passing stranger,” that comparison does not have a negative connotation in this context; it does not suggest that the speaker is uncomfortable. Rather, it is used to describe the subtle physical sensation of cool air on the speaker’s arm.
  - C. **CORRECT.** By using a description of the crisp air as “a passing stranger” and the daylight as being brief, these lines express the poem’s central idea that the joy of early fall is temporary or fleeting.
  - D. Incorrect. Although the speaker acknowledges the coming fall in these lines, there is no mention of loneliness. The speaker reveals a loneliness in lines 23–26 but gives no hint of that feeling in lines 9–12. Further, this loneliness is not a central idea of the poem.
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45. The question asks what the comparison of the brownstone houses to “a pop-up picture book I could have had as a child, / but didn’t” (lines 20–21) conveys.
- A. Incorrect. While the lines explain that the neighborhood reminds the speaker of images from childhood pop-up books, those images are not described as very powerful or influential.
  - B. **CORRECT.** Pop-up picture books are likely to delight a child with their unique, often beautiful representations of buildings that pop up out of the page. The comparison in these lines helps explain how the speaker views these brownstones with a childlike wonder and appreciation.
  - C. Incorrect. Though in these lines the speaker compares this neighborhood to scenes in children’s pop-up picture books, there is no clear evidence that the speaker wants to live there, only that the speaker appreciates its appeal.
  - D. Incorrect. The lines state that the speaker did not have a “pop-up picture book” of the neighborhood’s brownstones as a child, but not in a way that emphasizes regret. Rather, the speaker compares the neighborhood to images from pop-up books *in general* to suggest that the neighborhood looks beautiful and delightful.

46. The question asks how line 1 and lines 21–22 develop a central idea of the poem.
- A. Incorrect. Although these lines suggest that life is governed by repetitive patterns, such as the change of seasons, they do not suggest that the speaker wishes to break free from these natural cycles of change, and a desire for freedom is not a central idea of the poem.
  - B. Incorrect. Although the speaker acknowledges that colder weather will inevitably bring disappointment, the speaker does not suggest in these lines that the predictability of changing weather is itself disappointing. Rather, the speaker recognizes the value of enjoying the present moment.
  - C. **CORRECT.** These lines connect the present warmer weather with the future colder weather and develop the central idea that the present “moment I am walking inside of” must be embraced because the speaker will be “nostalgic” for it in the future.
  - D. Incorrect. In these lines, the speaker is aware that specific emotions will occur in the future, during cold weather, but this awareness is only part of the more complex central idea of the poem, which is that current emotions and feelings must be recognized, experienced, and appreciated.
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47. The question asks how the speaker’s thoughts throughout the poem develop a theme.
- A. **CORRECT.** The speaker’s thoughts develop some tension because seasonal change will inevitably come: “The weather will turn cold” (line 5). However, the speaker is still able to enjoy the present experience because “that all happens later” (line 6). In lines 21–22, the speaker begins to describe experiences that create a longing for the present, even while it is still happening (“How Brooklyn makes me nostalgic / for the moment I am walking inside of”), developing a theme of the poem.
  - B. Incorrect. The speaker’s thoughts reveal an appreciation for the city, but this appreciation is highly personal and individual. These thoughts do not indicate that most people will feel drawn to cities.
  - C. Incorrect. Some things, such as seasons, are beyond human control, as the speaker concedes: “I can already see how this will end” (line 1). However, the theme of the poem is not that certain things are inevitable, but that one can live in the present moment and enjoy that experience before change occurs.
  - D. Incorrect. The speaker’s thoughts are not showing that people are surprised by what the days bring; the thoughts of the speaker suggest that people experience many seasons in Brooklyn and have reasonable expectations about what these days will bring.

**48.** The question asks how the poet develops the speaker's point of view.

- A.** Incorrect. The speaker concedes that at some point, Brooklyn will become tiresome (lines 2–4). However, the bulk of the poem reveals the speaker's appreciation for experiencing Brooklyn, not a desire to be in some other place.
- B.** Incorrect. Cold weather is inevitable, and the speaker is well aware of this future shift as well as the change in attitude it will bring. Nevertheless, the speaker does not focus on this future but rather embraces the current season, describing it in vivid detail.
- C.** Incorrect. The speaker is not hopeful that life will remain unchanged. Rather, the speaker accepts and appreciates the seasonal changes that occur.
- D. CORRECT.** The speaker's point of view is largely positive and appreciative of the shift in seasons. This point of view is developed by language that shows a close connection between the speaker and the setting. For example, the speaker uses words such as "intimacy" (line 11) and "closeness" (line 14) and the description of the "pop-up picture book" (line 20). Finally, the conclusion emphasizes the point of view: "These late afternoons filled / with a loneliness that makes me feel / distinctly myself, and an awareness / of how rare that is" (lines 23–26).

## REVISING/EDITING PART A

### The End of an Era

49. The question asks for the sentence that should follow sentence 3 to **best** introduce the topic of the passage.
- A. **CORRECT.** This sentence best introduces the passage’s topic: the *Opportunity* rover had many accomplishments on its mission, despite numerous challenges. Some of those accomplishments include providing high-resolution photographs (paragraph 2), traveling long distances (paragraph 3), and providing data about craters and other surface features (paragraph 3).
  - B. Incorrect. Although paragraph 2 discusses how photographs taken by the rover showed rocks that may have been shaped by water, this idea alone is not the topic of the entire passage.
  - C. Incorrect. While this sentence incorporates ideas about difficulties the scientists encountered because of the *Opportunity* rover’s design (paragraph 4), the main topic of the passage is not the design flaws and obstacles scientists encountered throughout the mission. The passage primarily focuses on the achievements of the mission.
  - D. Incorrect. While it is true that the *Opportunity* rover mission lasted much longer than planned (sentence 3), this fact is a supporting detail of the passage, not the main topic of the passage; surpassing the original timeline is only one of the rover’s many achievements mentioned in the passage.
- 
50. The question asks for the word that should be added to the beginning of sentence 8 to provide a better transition to the third paragraph (sentences 8–11).
- A. “Overall,” is incorrect and should not be added. While sentence 8 is a more general statement than sentence 7, the word “Overall” would imply that all of the third paragraph features general information about the *Opportunity* rover. Instead, paragraphs 2 and 3 both describe specific accomplishments of the *Opportunity* rover (the discovery of possible water on Mars and the distance the rover traveled), so these paragraphs require a word between them that does not transition from the specific to the general.
  - B. “Furthermore,” is incorrect and should not be added. The word “Furthermore” would suggest that the author is making an argument in paragraph 2 that is further developed by the statement in sentence 8 and the rest of paragraph 3. Because this is not the case, the word “Furthermore” is not a suitable transition from one paragraph to the next.
  - C. **“Meanwhile,”** is correct and should be added. The word “Meanwhile” is an appropriate transition to add to the beginning of sentence 8, since the actions of the *Opportunity* rover in paragraph 2 (taking photographs) and in paragraph 3 (traveling long distances) happened at the same time and both served critical functions to the overall mission.
  - D. “Consequently,” is incorrect and should not be added. The word “Consequently” would create a cause-and-effect relationship that does not exist between the paragraphs. The passage gives no indication that the rover’s actions in the third paragraph (traveling a far distance) resulted from the actions in the second paragraph (taking photographs).

51. The question asks for the revision of sentence 11 that **best** maintains the formal style established in the passage.
- A. **CORRECT.** This sentence uses clear and formal writing throughout. The phrase “covered the planet” is accurate and formal without being overly poetic, and “standstill” is a precise word for putting something “on hold,” as expressed by the original sentence, while maintaining the formal style of the passage.
  - B. Incorrect. Although the sentence is formal in style, the word “shrouded” is overly poetic, and the phrase “impermanently halting” is too stilted and formal for the style and tone of the passage.
  - C. Incorrect. Although the sentence is formal in style, the words “enveloped” and “arresting” are overly poetic, especially when used in the same sentence, and the phrases “the whole of the planet” and “for a time” are needlessly wordy and imprecise, compared with the formal scientific language of the passage.
  - D. Incorrect. The phrases “covered up the whole planet” and “quickly brought a stop to the progress of the rover” are less formal and unnecessarily wordy, compared with the formal style established by the rest of the passage.
- 

52. The question asks where the sentence should be added to the passage.
- A. Incorrect. While sentence 2 refers to *Opportunity*’s mission to search for evidence of water, sentence 3 mentions the rover lasting much longer than anticipated. Placing the sentence between these two ideas, rather than at the start of the second paragraph, where it introduces the topic of the paragraph, would create a disjointed and confusing experience for the reader.
  - B. **CORRECT.** The sentence introduces the idea of finding possible evidence of water on Mars, which is the main topic of the second paragraph.
  - C. Incorrect. The sentence sets up the main idea of paragraph 2, which is the possibility of water on Mars. As a concluding sentence, it would be repetitive and confusing.
  - D. Incorrect. The sentence introduces the possibility of water on Mars, while sentences 8 and 9 discuss other surface features and the distance traveled by the rover. Adding the sentence here would create a disorganized paragraph.

**53.** The question asks for the **best** way to combine sentences 12 and 13.

- A.** Incorrect. The phrase “this planet-wide dust storm” in the original sentence 12 makes a direct reference to sentence 11 and therefore acts as a transition that should be kept at the beginning. In this sentence, the transition phrase is placed at the end of the sentence, making the phrase confusing. In addition, the sentence is unnecessarily repetitive and wordy.
- B.** Incorrect. This combination unnecessarily turns sentence 12 into an overly long dependent clause, making the connection between “it” and its antecedent, “the rover,” unclear and distracting from the subject of the sentence, “minor dust storms.”
- C.** Incorrect. Not only does this combination move the reference to “this planet-wide dust storm” farther from sentence 11, but it is also unnecessarily wordy, adding “because” and repeating “the rover.”
- D. CORRECT.** This sentence efficiently and accurately adds sentence 13 to sentence 12 as a dependent clause by changing “These prevented” to “preventing,” while also retaining the meanings of the original sentences 12 and 13.

## REVISING/EDITING PART B

54. The question asks which part of the paragraph contains an error in sentence structure.
- A. Choice 1: **“Institution, the”** contains an error in sentence structure. The comma between these two words creates a type of run-on sentence known as a comma splice because both clauses—“In September 2016 the National Museum of African American History and Culture opened as part of the Smithsonian Institution” and “the museum is already the Smithsonian’s third most popular site”—are independent clauses, and must be separated with either a period or semicolon. If a comma is used to join the clauses together, a conjunction such as *and* would need to be added after the comma [converting the comma splice into a correct compound sentence].
  - B. Choice 2: “year. The” is correctly constructed, with independent clauses on both sides of the period (“Experts say that they expect this newest Smithsonian facility to welcome nearly 4 million visitors a year” and “The museum features more than 30,000 objects, including Muhammad Ali’s boxing gloves and a dress sewn by Rosa Parks”).
  - C. Choice 3: “objects, including” is correctly constructed. The sentence is correct as written with the nonrestrictive appositive phrase (“including Muhammad Ali’s boxing gloves and a dress sewn by Rosa Parks”) properly preceded by a comma.
  - D. Choice 4: “Proclamation, written” is correctly constructed. The sentence is correct, with the nonrestrictive clause (“written in 1863 during the presidency of Abraham Lincoln”) properly offset by a comma on either side.
- 
55. The question asks for the **best** way to combine the sentences to clarify the relationship between the ideas.
- A. Incorrect. Even though the two ideas from the original sentences are incorporated into the combined sentence, the use of the conjunction “while” in the first part of the sentence suggests that there is a simultaneous but unrelated relationship between the two ideas, which is incorrect.
  - B. Incorrect. The combined sentence incorporates the ideas from both sentences, but the conjunction “although” suggests that scientists were allowed to collect data even though there were flyby missions, which is an inaccurate way to express the relationship between the ideas.
  - C. **CORRECT.** This sentence is the best way to combine the sentences because it accurately reflects the relationship between the ideas by using the nonrestrictive clause “which allow scientists to collect data about the planet and its moons” to describe the purpose of the flyby missions. (Nonrestrictive clauses are adjective clauses that give additional information about a word or phrase. They sometimes begin with the relative pronoun “which” and are set off by commas.) The idea that the missions “have been happening since 1973” follows the nonrestrictive clause.
  - D. Incorrect. The combined sentence uses the conjunction “but” to connect the ideas in the two original sentences. This suggests an adverse relationship between ideas, which is an inaccurate way to connect the ideas expressed in the original sentences.

56. The question asks which sentence in the paragraph contains an error in construction.
- A. Sentence 1: Construction is correct. An introductory prepositional phrase is correctly punctuated in sentence 1 and describes when the power outage occurred. Similarly, the direct object, “the Upper West Side of Manhattan in New York City,” is presented clearly in terms of what area was “affected” by the power outage.
  - B. Sentence 2: **Contains an error in construction.** In sentence 2, the phrase “Leaving approximately 73,000 residents without electricity for three long hours” is a dangling modifier because it is not clearly modifying any word or words in the sentence. It actually further describes the “power outage” in sentence 1. In clear and correct construction, all modifiers should be in the same sentence as and near the words they describe in order to avoid confusion.
  - C. Sentence 3: Construction is correct. A dash is used appropriately in sentence 3 to show a break in thought and to introduce the phrase “on the exact same day.”
  - D. Sentence 4: Construction is correct. Two commas are used correctly in sentence 4 to set off the nonessential clause “which lasted for 25 hours” from the rest of the sentence. Similarly, one comma is used to set off the nonessential appositive “an odd coincidence to say the least.” Both of these elements are nonessential to the sentence’s overall meaning and are thus correctly separated from the sentence by the use of commas.
- 

57. The question asks how the paragraph should be revised.
- A. Incorrect. The revisions in this option introduce new errors. The word “spent” is correct in the simple past tense because it encompasses the actions described throughout the rest of the paragraph, all of which happened during those “several hours.” Additionally, adding a comma after the word “play” would be incorrect because it would unnecessarily separate the prepositional phrase “at the community theater” from the rest of the sentence.
  - B. Incorrect. The revisions in this option introduce new errors. The word “did” is correct as written in the past tense because the past tense is used throughout the paragraph. There is no comma needed after the word “projection” because “so” is functioning not as a conjunction but rather as part of the conjunction phrase “so that,” which does not take a comma.
  - C. **CORRECT.** Changing the word “studies” from the present tense to the past tense “studied” is necessary to match the past tense established in the paragraph (“spent,” “recited”). Additionally, the comma after the word “emotions” needs to be removed because the words “emotions and motivations” are part of a group (series) of two elements, and when there are only two elements in a series, a comma is not used.
  - D. Incorrect. The revisions in this option introduce new errors. The word “recited” is correct as written in the past tense because the past tense is used throughout the paragraph. Also, removing the comma after “times” is incorrect because the comma is needed in order to separate the modifying phrase “making slight adjustments and improvements to her performance each time” from the main clause.

58. **(D)**  $x(x - 2y) = 9[9 - 2(-7)] = 9(9 + 14)$   
 $= 9(23) = 207$

---

59. **(A)**  $0.06 = \frac{6}{100}$ . Simplify the fraction to find the answer:  $\frac{6}{100} = \frac{3}{50}$ , so  $x = 3$ .

---

60. There were **47** students surveyed, and **12** students like only soccer.

To determine how many students were surveyed, start with the total number of students who like basketball and soccer separately and subtract the number of students who were counted twice.

There were 25 students who like basketball, 19 students who like soccer, and 7 students who like both basketball and soccer.

So, the total number of students who like basketball or soccer is  $(25 + 19) - 7 = 37$ .

Then, add the students who don't like either basketball or soccer: 10 students don't like either sport.

Total students surveyed:  $37 + 10 = 47$

To determine how many students like only soccer, subtract the number of students who like both basketball and soccer from the total number of students who like soccer.

Students who like only soccer:  $19 - 7 = 12$

**61.** The three correct answers are:

$$\frac{18}{150} = \frac{x}{250}$$

$$\frac{150}{18} = \frac{250}{x}$$

$$\frac{x}{18} = \frac{250}{150}$$

Set up a proportion to compare the number of buns per customer. These are all equivalent:

$$\frac{18 \text{ dozen buns}}{150 \text{ customers}} = \frac{x \text{ dozen buns}}{250 \text{ customers}}$$

To check for equivalency, solve each proportion for  $x$ .

Each of the three correct proportions simplifies to  $150x = 18(250)$ .

Then solve for  $x$  to determine how many dozen buns are needed for 250 lunch customers:

$$150x = 4,500$$

$$x = \frac{4,500}{150}$$

$$x = 30$$

**62.** Step 1: Convert the zogs to minks.

Since 1 mink = 3 zogs, divide the number of zogs Maria has by 3:  $60 \div 3 = 20$ .

So, 60 zogs = 20 minks.

Step 2: Convert the barts to minks.

Since 1 mink =  $\frac{1}{4}$  bart, multiply the number of barts by 4 (because 1 bart is equal to 4 minks):

$$24 \times 4 = 96.$$

So, 24 barts = 96 minks.

Step 3: Add the mink conversions.

Add the results from Steps 1 and 2 to find the total number of minks Maria will receive:

$$20 + 96 = 116.$$

---

**63. (120)** There are 5 choices for the first digit, 4 choices for the second digit, 3 choices for the third digit, 2 choices for the fourth digit, and 1 choice for the final digit. The total number of possibilities is  $5 \times 4 \times 3 \times 2 \times 1 = 120$ .

---

**64. (A)** Find the missing angle, angle QPT, of triangle PQT:  $180^\circ - 70^\circ - 50^\circ = 60^\circ$

In parallelogram PQRS, angle QPT is congruent to angle QRS, so the measure of angle QRS is also  $60^\circ$ .

65. (D) Break the equations apart to each equal  $M$ :

$$M = 3N$$

$$M = \frac{P}{4}$$

$$M = Q + 5$$

$$M = \frac{R}{7}$$

Pick a number to substitute into the equations, and solve the equations to find the values of  $M$ ,  $N$ ,  $P$ ,  $Q$ , and  $R$ .

Let  $M = 2$ . Since all the equations are equal to 2, substitute 2 to find each variable.

$$M = 2N$$

$$2 = 3N$$

$$\frac{2}{3} = N$$

$$M = \frac{P}{4}$$

$$2 = \frac{P}{4}$$

$$8 = P$$

$$M = Q + 5$$

$$2 = Q + 5$$

$$-3 = Q$$

$$M = \frac{R}{7}$$

$$2 = \frac{R}{7}$$

$$14 = R$$

Variable  $R$  has the greatest value.

---

66. (C) Set up a proportion:

$$\frac{x}{416} = \frac{3}{96}$$

$$96x = 1,248$$

$$x = 13 \text{ bundles}$$

- 67. (C)** Set up an inequality to compare the costs:

$$0.15x \leq 10.50$$

$$x \leq 70$$

Therefore, 70 individual sheets of paper would cost \$10.50, so 69 is the greatest number of individual sheets of paper that Macie can buy that would be less expensive than the package.

---

- 68. (B)** 7:00 p.m. is 6 hours after 1:00 p.m. Calculate the number of degrees the temperature dropped in 6 hours:  $3 \times 6 = 18$  degrees. Subtract that from the starting point (8 degrees) to find the solution:  $8 - 18 = -10$  degrees.
- 

- 69. (D)** The ratio of red to blue to green is 15:7:3. Find the proportion of blue marbles. Add the numbers of the ratio and use the total sum as the denominator:  $\frac{7}{15 + 7 + 3} = \frac{7}{25}$ . Find the proportion of green marbles:  $\frac{3}{25}$ .

Since there are a total of 75 marbles, the number of blue marbles is  $\frac{7}{25} \times 75 = 21$ .

The number of green marbles is  $\frac{3}{25} \times 75 = 9$ .

The number of red marbles is  $75 - 21 - 9 = 45$ . If 2 blue marbles are removed and replaced with 2 green marbles, the number of blue marbles will be 19 and the number of green marbles will be 11. The ratio of red marbles to green marbles will be 45:11.

---

- 70. (B)** The total number of desserts ordered is  $42 + 23 + 47 + 48 = 160$ .

The probability that ice cream was chosen is  $\frac{48}{160} = \frac{3}{10} = 30\%$ .

**71. (C)** Since 18 and 24 are both multiples of 6, find the least common multiple of **only** 18 and 24.

Multiples of 18: 18, 36, 54, 72, . . .

Multiples of 24: 24, 48, 72, . . .

The least common multiple of 6, 18, and 24 is 72.

---

**72.** The total number of fruits is:

$$3(\text{apples}) + 4(\text{oranges}) + 5(\text{bananas}) + 8(\text{pears}) = 20 \text{ fruits}$$

The probability of picking a pear is:

$$\frac{8(\text{pears})}{20(\text{total})} = \frac{8}{20} \text{ or } 0.4$$

---

**73. (C)** The total number of bottles of juice in the cooler is  $5 + 3 + 6 = 14$ .

The number of bottles of juice that are **not** apple juice (grape juice and orange juice) is

$$3 + 6 = 9.$$

So the probability is  $\frac{9}{14}$ .

**74. (D)** The radius of the large plate is 20 cm. Use 20 cm to find the area of the large plate:

$$A = \pi r^2 = \pi(20^2) = 400\pi \text{ sq cm}$$

The circumference of the smaller plate is  $20\pi$  cm. Use that to find the radius, and then the area, of the smaller plate:

$$C = 2\pi r$$

$$20\pi = 2\pi r$$

$$r = 10$$

$$A = \pi r^2 = \pi(10^2) = 100\pi \text{ sq cm}$$

Subtract the area of the small plate from the area of the large plate:

$$400\pi - 100\pi = 300\pi \text{ sq cm}$$

**75.** The two tables that represent a proportional relationship are tables A and C.

In table A, the total costs divided by the numbers of books for each set of quantities are:

$$\frac{40}{10} = 4 ; \frac{60}{15} = 4 ; \frac{80}{20} = 4 ; \frac{100}{25} = 4$$

These ratios are equivalent; therefore, these quantities are in a proportional relationship.

In table C, the total costs divided by the numbers of books for each set of quantities are:

$$\frac{80}{10} = 8 ; \frac{120}{15} = 8 ; \frac{160}{20} = 8 ; \frac{200}{25} = 8$$

These ratios are equivalent; therefore, these quantities are in a proportional relationship.

**76. (15)** Solve the inequality for  $x$ .

$$x + 7 < 23$$

$$x < 16$$

There are 15 positive integers that are less than 16.

---

**77. (A)** Substitute 3 for  $y$  and solve for  $x$ :

$$\frac{36}{y} = 4x$$

$$\frac{36}{3} = 4x$$

$$12 = 4x$$

$$3 = x$$

---

**78. (D)** Since  $\overline{XY} = 20$  cm, use that to find  $\overline{YZ}$ :

$$\overline{YZ} = \frac{3}{5}\overline{XY} = \frac{3}{5}(20) = 12 \text{ cm}$$

$$\overline{XZ} = \overline{XY} + \overline{YZ} = 20 + 12 = 32 \text{ cm}$$

**79. (C)** Calculate the cost of the cloth before tax:

$$1\frac{3}{4} \times 8 = \frac{7}{4} \times 8 = \$14$$

Find the tax for \$14 worth of cloth:

$$14 \times 8\% = 14 \times \frac{8}{100} = \$1.12$$

Add the cost of the cloth and the tax:

$$\$14 + \$1.12 = \$15.12$$

---

**80. (B)** To find M, subtract  $N - M$  and set it equal to the length:

$$1\frac{1}{3} - M = 5\frac{5}{6}$$

$$-M = 5\frac{5}{6} - 1\frac{1}{3}$$

$$-M = 5\frac{5}{6} - 1\frac{2}{6}$$

$$-M = 4\frac{3}{6}$$

$$M = -4\frac{1}{2}$$

- 81. (B)** Add the four values in the ratio ( $177 + 12 + 7 + 4 = 200$ ) and use the sum as the denominator. Use that to find the fraction of zinc in one of the coins. Then reduce the fraction:

$$\frac{12}{200} = \frac{3}{50}$$

Multiply this fraction by 8 to find the number of grams of zinc in decimal form:

$$\frac{3}{50} \times 8 = \frac{24}{50} = 0.48 \text{ g}$$

---

- 82. (C)** Jack scored a mean of 15 points per game in each of the first 3 games, so he earned a total of 45 points for the first 3 games. Use that information to calculate the mean over the 4

games:  $\frac{45 + 27}{4} = \frac{72}{4} = 18$

---

- 83. (B)** Find the number of liters that need to be added. Since  $\frac{1}{3}$  of the oil drum is full,  $\frac{2}{3}$  of the drum remains empty:

$$\frac{2}{3} \times 4,320 = 2,880 \text{ liters.}$$

Use the conversion  $1 \text{ kL} = 1,000 \text{ L}$  to find the number of kL:  $\frac{2,880}{1,000} = 2.88 \text{ kL}$

- 84. (B)** To find out how old Nicole was 5 years ago, find out how old Nicole and Carmen are now.

Let  $N$  = Nicole's age now.

Let  $C$  = Carmen's age now.

$$C + 2 = 17, \text{ so } C = 15$$

$$N = 3C$$

$$N = 3(15) = 45 \text{ (Nicole's age now)}$$

$$N - 5 = 45 - 5 = 40 \text{ (Nicole's age 5 years ago)}$$

---

- 85. (C)** Let  $x$  be the original amount of the chemical. It loses 20% after each week, which means 80% of the chemical remains at the end of each week. End of first week:  $0.80x$

At the end of the second week, 80% of the amount left at the end of the first week remains.

$$\text{End of second week: } 0.80(0.80x) = 0.64x \text{ or } 64\%$$

---

- 86. (C)** One more than an odd integer must be even.

One more than  $w - 1$  is  $w$ , therefore  $w$  must be even. Two times an even integer must be even, therefore  $2w$  is even. An even integer decreased by 2 must be even.

Therefore,  $2w - 2$  must be even.

---

- 87. (B)** Find the least common multiple of 2, 3, and 4, which is 12. So, it takes 12 minutes before all three are back at the starting line. Ann completes 1 lap every 2 minutes, so in 12 minutes she has completed 6 laps.

**88. (B)**

$$\begin{aligned}4(7 - 3x) - (5 - x) &= 28 - 12x - 5 + x \\ &= 23 - 11x\end{aligned}$$

---

**89. (D)** Add the numbers of students for each category to find out how many total students were in the survey:  $12 + 16 + 7 + 5 = 40$

The number of students who had at least 2 pets are the ones who have 2 pets (7) plus the ones who have 3 or more (5). The total number of students with at least 2 pets is  $7 + 5 = 12$ .

The probability of a student in the survey having at least two pets is  $\frac{12}{40} = \frac{3}{10}$ .

---

**90.** Solution:

$$25\pi$$

The area of a circle is its radius squared times  $\pi$ .

$$A = \pi r^2$$

$$r = 5$$

$$A = \pi(5)^2$$

$$A = 25\pi$$

**91. (B)**

$$\begin{aligned} & 5x^3 + 3x + 9 + \frac{1}{x^2} \\ &= 5(10^3) + 3(10) + 9 + \frac{1}{10^2} \\ &= 5,000 + 30 + 9 + \frac{1}{100} = 5,039.01 \end{aligned}$$

---

**92. (A)** The length of one side of the square is 6 cm. Since R, S, and T are midpoints, then

$\overline{TM}$ ,  $\overline{MR}$ ,  $\overline{RN}$ , and  $\overline{NS}$  are all equal to 3 cm. Triangles TMR and RNS are both right triangles, so the area of one of the triangles is  $\frac{1}{2} \times 3 \times 3 = \frac{9}{2}$ . The triangles are congruent, so the sum of the areas is  $\frac{9}{2} + \frac{9}{2} = 9$  sq cm.

---

**93. (D)** Let  $x$  be the amount spent on planned expenses in one year:

$$\begin{aligned} \frac{x}{29,600} &= \frac{5}{8} \\ x &= \frac{5}{8}(29,600) = 18,500 \end{aligned}$$

- 94. (C)** Figure out how many different topping pairs are possible. Use 1, 2, 3, 4, 5, 6, 7 to represent the toppings, and create a list of possible pairs:

1,2; 1,3; 1,4; 1,5; 1,6; 1,7

2,3; 2,4; 2,5; 2,6; 2,7

3,4; 3,5; 3,6; 3,7

4,5; 4,6; 4,7

5,6; 5,7

6,7

So there are 21 different topping combinations for one pizza.

Since there are 3 pizza sizes, multiply the total number of combinations by 3 to get the total number of different pizzas Cody can create:  $3 \times 21 = 63$ .

---

- 95. (C)** None of the 80 students ( $800 - 720$ ) who answered “no” to Question A could have answered “yes” to both questions. Therefore, the least possible number of students who could have answered “yes” to both questions can be found by subtracting the 80 who answered “no” to Question A from the 640 who answered “yes” to Question B, or  $640 - 80 = 560$ .
- 

- 96. (D)** One side of the square base is 3 ft long. Since the height of the box is 3 times the length, then the height is  $3 \times 3 = 9$  ft. The volume of a rectangular prism is length  $\times$  height  $\times$  width. The volume of the wooden box is  $V = 3 \times 3 \times 9 = 81$  cu ft.

**97. (B)** Calculate each mean speed:

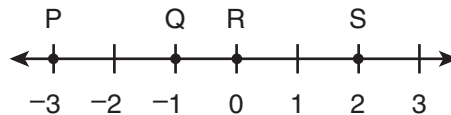
$$R = \frac{65}{5} = 13 \text{ kph}$$

$$S = \frac{72}{4} = 18 \text{ kph}$$

Then calculate the difference of both mean speeds:

$$S - R = 18 - 13 = 5 \text{ kph}$$

**98. (C)**



Find the midpoint of PQ and RS:

$$\text{Midpoint of PQ} = \frac{-1 - (-3)}{2} = \frac{2}{2} = 1 \text{ unit.}$$

The midpoint of PQ is located 1 unit from each endpoint, so the midpoint is at  $-2$ .

$$\text{Midpoint of RS} = \frac{2 - 0}{2} = \frac{2}{2} = 1 \text{ unit.}$$

The midpoint of RS is located 1 unit from each endpoint, so the midpoint is at 1. The distance between the two midpoints is  $1 - (-2) = 3$  units.

- 99. (D)** If 1 L=1,000 cu cm, then 1 L = 1,000 mL. Set up a proportion, letting  $x$  = the amount of cubic millimeters in 1,000 cubic centimeters.

$$\frac{1,000 \text{ cu cm}}{1 \text{ L}} = \frac{x \text{ cu mm}}{1,000 \text{ cu mm}}$$

Solve for  $x$ : 1,000,000 cubic millimeters are in 1,000 cubic centimeters.

---

- 100. (A)** Both  $x + 1$  and  $y + 2$  are radii (each is a radius). So, set them equal to each other and solve for  $y$ :

$$y + 2 = x + 1$$

$$y = x - 1$$

**101. (C)** There are 5 sections between M and T. To find the length of one of these sections, find the distance between M and T and divide by 5:

$$\begin{aligned} \left(\frac{5}{8} - \left(-\frac{1}{4}\right)\right) \div \frac{5}{1} &= \\ \left(\frac{5}{8} + \frac{2}{8}\right) \div \frac{5}{1} &= \\ \frac{7}{8} \div \frac{5}{1} = \frac{7}{8} \times \frac{1}{5} &= \frac{7}{40} \end{aligned}$$

R is 3 sections away from M, so add:

$$-\frac{1}{4} + 3\left(\frac{7}{40}\right) = -\frac{10}{40} + \frac{21}{40} = \frac{11}{40}$$

R is located at  $\frac{11}{40}$ .

---

**102. (D)** Let  $x$  be the number of minutes Phan used his Internet service in the month. Phan's monthly charges were  $18 + 0.024x$ . Since Deion's charges were the same as Phan's, set the expression equal to 30 and solve for  $x$ :

$$18 + 0.024x = 30$$

$$0.024x = 12$$

$$x = 500$$

Phan used his service for 500 minutes.

**103. (B)** Create a chart using the given information and use subtraction to figure out how many cars are **not** red **and** do **not** have a backup camera:

	Red	Not Red	TOTAL
Backup Camera	4	<b>6</b> <b>(10 - 4)</b>	10
No Backup Camera		<b>32</b> <b>(38 - 6)</b>	
TOTAL	12	<b>38</b> <b>(50 - 12)</b>	50

The probability of selecting a car that meet both conditions from the total of 50 cars at the dealership is  $\frac{32}{50} = \frac{16}{25}$ .

---

**104. (3)**

$$\frac{147 - x}{12} = 12$$

$$147 - x = 144$$

$$x = 3$$


---

**105. (C)** The height of the triangle is 4 units. The length of the base is  $n - m$ .

$$\text{So, the area is } A = \frac{1}{2}(n - m)(4) = 2(n - m).$$


---

**106. (B)** The total number of cards in the box is  $8 + 6 + 5 + 4 + 1 = 24$ . Set up a proportion to figure out which card has exactly a 1 in 4 chance of being picked at random:  $\frac{x}{24} = \frac{1}{4}$  or  $x = 6$ . The dog card has a 1 in 4 chance of being randomly selected.

**107. (C)** Separate the compound inequality into two pieces:

$$2x - 2 \leq y \text{ and } y \leq 4x + 10$$

Substitute  $y = 1$  into each inequality and solve for  $x$ :

$$2x - 2 \leq 1$$

$$2x \leq 3$$

$$x \leq \frac{3}{2}$$

$$1 \leq 4x + 10$$

$$-9 \leq 4x$$

$$-\frac{9}{4} \leq x$$

The solution is the number line that shows that  $x$  is greater than or equal to  $-2\frac{1}{4}$  and less than or equal to  $1\frac{1}{2}$ .

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**108. (C)**

$$\frac{14}{21} = \frac{p}{7}$$

$$21p = 7(14)$$

$$21p = 98$$

$$p = \frac{98}{21} = \frac{14}{3}$$

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**109. (A)** The total number of balls in the box is  $7 + 14 + 21 = 42$ .

The probability that the ball is black is  $\frac{7}{42} = \frac{1}{6}$ .

**110.** Solution:  $y = 20x + 50$

An equation of the form  $px + q = r$  can be used to represent the total amount Amiya will pay.

Using the information from the scenario, the onetime setup fee of \$50 is the constant term ( $q$ ), and the \$20 per month of service is the coefficient ( $p$ ) of the number of months ( $x$ ).

So, the equation that can be used to determine the total amount Amiya will pay,  $y$ , for  $x$  months of service is  $y = 20x + 50$ .

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**111. (A)** Raoul is at least 3 years older than Vahn, which can be written as  $r \geq v + 3$ .

Rewrite this inequality to match the answer options:

$$r - v \geq 3.$$

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**112. (B)** Since 5.6 ricks and 12.88 dalts are both equal to 1 sind, then  $5.6 \text{ ricks} = 12.88 \text{ dalts}$ . To calculate the number of dalts ( $d$ ) in 1 rick, set up a proportion:

$$\begin{aligned}\frac{5.6}{12.88} &= \frac{1}{d} \\ 5.6d &= 12.88 \\ d &= 2.3\end{aligned}$$

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**113. (D)** The shelf, when full, holds 36 cans. When the shelf is half full, it holds 18 cans.

$$\begin{aligned}x - 4 &= 18 \\ x &= 22\end{aligned}$$

**114. (C)** The probability of the cup landing on its side is 72%. Carlos tossed the cup a total of 200 times (50 + 150). The number of times the cup lands on its side is 72% of 200:

$$0.72 \times 200 = 144$$