

Practice Test B Appendix
Explanations and
Printable Online Practice Test

The New York City Department of Education
Specialized High Schools Admissions Test
Grade 8

General Directions

This test consists of 100 questions across two subjects, English Language Arts and Mathematics.

PART 1 — ENGLISH LANGUAGE ARTS
50 QUESTIONS

Questions 1-50

PART 2 — MATHEMATICS
50 QUESTIONS

Questions 51-100

Planning Your Time

- For practice tests with the timer enabled, your test session will end after 180 minutes.
- In a computer adaptive test (CAT), you must answer every question. For Math and stand-alone revising and editing questions, you will not be able to return to a question once you have advanced to the next question.
- ELA Reading Comprehension and Revising & Editing passage sets only:
 - For each passage set (a text and its related questions), you can return to the questions within the set and alter your responses; however, once you advance forward from the last question of that set, you will be unable to return to any questions in the set or change your answers.
- Do not spend too much time on any one question. If you are unsure, choose the response you think is best.
- You must complete the subject area you started with before moving on to the next subject area. Once you submit a subject area, you will be unable to return to it.

English Language Arts
READING COMPREHENSION

DIRECTIONS: Read each of the following texts and answer the related questions. As needed, you may use the online notepad tool or write on the scrap paper given to you to take notes. You should reread relevant parts of each text, while being mindful of time, before selecting the **best** answer for each question. Base your answers only on the content within the text.

Excerpt from “The Past and the Future of the Earth’s Oldest Trees”

by Alex Ross

- 1 About forty-five hundred years ago, not long after the completion of the Great Pyramid at Giza, a seed of *Pinus longaeva*, the Great Basin bristlecone pine, landed on a steep slope in what are now known as the White Mountains, in eastern California. The seed may have travelled there on a gust of wind, its flight aided by a winglike attachment to the nut. Or it could have been planted by a bird known as the Clark’s nutcracker, which likes to hide pine seeds in caches; nutcrackers have phenomenal spatial memory and can recall thousands of such caches. This seed, however, lay undisturbed. On a moist day in fall, or in the wake of melting snows in spring, a seedling appeared above ground—a stubby one-inch stem with a tuft of bright-green shoots.
- 2 Most seedlings die within a year; the mortality rate is more than ninety-nine percent. The survivors are sometimes seen growing in the shadow of a fallen tree. The landscape of the Ancient Bristlecone Pine Forest, as this area of the White Mountains is called, is littered with fragments of dead trees—trunks, limbs, roots, and smaller chunks. *Pinus longaeva* grows exclusively in subalpine regions of the Great Basin, which stretches from the eastern slopes of the Sierra Nevada to the Wasatch Range, in Utah. Conditions are generally too arid for the dead wood to rot; instead, it erodes, sanded down like rock. The remnants may harbor nutrients and fungi that help new trees grow. Bristlecones rise from the bones of their ancestors—a city within a cemetery.
- 3 Coast redwoods and giant sequoias, California’s gargantuan world-record-holding trees, can grow fifty feet or more in their first twenty years. Bristlecones rise agonizingly slowly. After four or five years, the seedling on the steep slope would have been just a few inches higher, sprouting needles in place of the embryonic shoots. The needles are a deep green, tough, resinous, and closely bunched in groups of five. On a mature tree, they live for fifty years or more. Decades may have passed before the tree was human height, and decades more before it resembled a conventional pine. Bristlecone saplings grow straight up, with relatively sparse foliage, looking like undernourished Christmas trees. After a few hundred years—by which time the Old Kingdom of Egypt had fallen—it was probably forty or fifty feet in height.
- 4 Many tree species live for hundreds of years. A smaller but not inconsiderable number, including the sequoias and certain yews, oaks, cypresses, and junipers, survive for thousands. Once a bristlecone has established itself in the unforgiving conditions of the White Mountains, it can last almost indefinitely. The trees tend to grow some distance from one another, so fires almost never destroy an entire stand. Because only a few other plant species can handle the dry, cold climate, the bristlecones face little competition. Unlike most plants, they tolerate dolomite soil, which is composed of a chalky type of limestone that is heavily alkaline and low in nutrients. As for insect threats, bristlecone wood is so dense that mountain-pine beetles and other pests can rarely burrow their way into it.
- 5 Empires rose and fell; wars raged; . . . and the tree from 2500 B.C. continued its implacable slow-motion existence, adding about two-hundredths of an inch to the diameter of its trunk each

year. Minute changes in the tree-ring record make bristlecones an exceptionally useful source of data about changing conditions on Earth. When rains are heavier than normal, the rings widen. When volcanic eruptions cause global cooling, frost rings make the anomaly visible. . . .

6 As the millennia go by, bristlecones become contorted and wraithlike. The main stem, or leader, dies back. Entire branches, even the trunk itself, become fossils. At first glance, the tree may look dead. Such is the case of the forty-five-hundred-year-old tree that clings to life near the tourist path that now runs through the Ancient Bristlecone Pine Forest. Spears of dead wood jut into the air. The trunk is a marbled hulk stripped of bark, like driftwood thrown from a vanished ocean. A ribbon of live bark runs up one side, funneling water and nutrients to clumps of green needles high above. All told, the tree is an unprepossessing specimen; most people march past it without giving it a second glance. . . .

7 . . . No two super-elderly trees look alike, to the point where they have acquired the characteristics of individuals. Trees are prone to anthropomorphism; we project our dreams and our anxieties onto them. Bristlecones have been called elders, sentinels, sages. The possibility that climate change will cause their extinction has inspired a spate of alarmed news stories, although tree scientists tend to discount the idea that the bristlecones are in immediate danger. They have survived any number of catastrophes in the past; they may survive humanity.

From "The Past and the Future of the Earth's Oldest Trees" by Alex Ross from THE NEW YORKER, January 20, 2020. Copyright © 2020 by Condé Nast. All rights reserved.

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2 Most seedlings die within a year; the mortality rate is more than ninety-nine percent. The survivors are sometimes seen growing in the shadow of a fallen tree. The landscape of the Ancient Bristlecone Pine Forest, as this area of the White Mountains is called, is littered

What is the effect of comparing groups of bristlecone pines to “a city within a cemetery” (paragraph 2)?

- A. It illustrates that the new tree’s appearance is markedly different from that of mature bristlecone pines.
- B. It emphasizes the new tree’s ability to use resources left by prior generations of bristlecone pines.
- C. It highlights the tree’s capacity for a long life if it is able to survive to maturity.
- D. It reveals that the tree’s dense growth patterns are unusual in arid conditions.

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Excerpt from “The Past and the Future of the Earth’s Oldest Trees”

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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In paragraph 4, the idea that the bristlecone pine can withstand difficult conditions is illustrated **mainly** through

- A. a comparison of the bristlecone pine with similar trees that are known for their long lives.
- B. a description of specific qualities of the bristlecone pine that make it suited to its environment.
- C. an explanation of why the White Mountains are the best place for the bristlecone pine to grow.
- D. an examination of why the bristlecone pine has few competitors in the White Mountains.

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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.

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Read this sentence from paragraph 5.

Empires rose and fell; wars raged; . . . and the tree from 2500 B.C. continued its implacable slow-motion existence, adding about two-hundredths of an inch to the diameter of its trunk each year.

The sentence contributes to the development of ideas in the excerpt by

- A. emphasizing the bristlecone pine’s precise growth pattern.
- B. suggesting that things that seem well established face threats.
- C. describing the pace of the life cycle of the bristlecone pine.
- D. explaining the reason for the bristlecone pine’s longevity.

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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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Which claim is **best** supported by the details in paragraph 5 about the bristlecone pine’s tree-ring record?

- A. The bristlecone pine must be protected from extinction so that there is a record of changing Earth conditions.
- B. The structure of the bristlecone pine allows scientists to predict changing Earth conditions over time.
- C. The slow growth process of the bristlecone pine allows it to survive in spite of changing Earth conditions.
- D. The bristlecone pine can be used to gather information on changing Earth conditions because of its long life.

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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.

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The phrases “clings to life” and “stripped of bark” in paragraph 6 are used to highlight

- A. that the tree is fragile and needs help to avoid becoming extinct.
- B. how the tree can be misunderstood because of its appearance.
- C. how the tree interests observers with its unusual appearance.
- D. that the tree manages to survive even when partially fossilized.

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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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What is the **best** summary of the bristlecone pine’s life cycle?

- A. The bristlecone pine takes root as a stubby seedling in the mountains. Over time, it grows slowly in a hostile environment with alkaline soil that ensures little competition from other trees.
- B. The bristlecone pine grows up slowly from the fragments of its dead ancestors. Over time, it begins to become contorted in appearance but continues to funnel water and nutrients to its stem.
- C. The bristlecone pine grows slowly in an environment hostile to other trees. Over time, its trunk and some branches fossilize, but it funnels water and nutrients to other parts that are still alive.
- D. The bristlecone pine grows only in one location in the mountains. Over time, it develops sparse foliage that fossilizes slowly, but the trunk and branches stay alive, as revealed by ribbons of live bark.

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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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Throughout the excerpt, the author conveys his point of view **mainly** by

- A. sharing details about the qualities of the bristlecone pine that make it an unusual tree.
- B. comparing the bristlecone pine to global empires that lasted thousands of years before falling.
- C. explaining the way the seemingly sickly appearance of the bristlecone pine contrasts with its ability to survive.
- D. arguing that the bristlecone pine has survived past threats to its survival and will continue to thrive.

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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.

There are no more questions for this passage set.

Use the review button  to return to any questions about the passage you have just read.

Once you select the blue arrow  at the top of this screen, you will **not** be able to return to any questions about this passage.

Passage 22

A Miracle Mile

- 1 In the 1950s people compared running one mile in four minutes to scaling Mount Everest and nicknamed the feat a “dream mile.” Although such an accomplishment was considered humanly impossible, several elite runners aimed to break that supposedly impenetrable barrier. One of them was a twenty-five-year-old medical student named Roger Bannister.
- 2 Roger Bannister had tasted failure during the 1952 Olympics. There, he was favored to win the 1,500-meter competition, a distance slightly shorter than a mile, but he finished in a dismal fourth place instead. Bannister’s performance was a disappointment for him and his country, Great Britain. Determined to redeem himself, Bannister postponed his plans to retire from racing and focused on the ultimate prize—breaking the four-minute-mile barrier.
- 3 Bannister attacked the elusive milestone with a positive attitude and logical planning. The amateur athlete decided to use intensive interval training to develop endurance and speed. For these workouts, Bannister ran an interval of ten consecutive laps on a quarter-mile track, aiming for sixty seconds each lap. In between intervals, he let his body recover for two minutes.
- 4 By early 1954, Bannister had succeeded in lowering his quarter-mile pace to sixty-one seconds, but he had to shave off at least one more second in order to reach his target. Frustrated by the plateau he had reached, Bannister took a break from training and went mountain climbing for three days. The rest from running permitted his muscles to recuperate and left him feeling refreshed. When Bannister returned to the track, he completed ten quarter-mile-long intervals at fifty-nine seconds each. He finally felt prepared to attempt to break the world record.
- 5 As a member of the Amateur Athletic Association (AAA), Bannister joined the AAA team for a track meet against Oxford University. The event took place on a cinder track in Oxford on May 6, 1954. Bannister and his two AAA teammates, Chris Chataway and Chris Brasher, were close friends and frequent running partners. Chataway and Brasher agreed to help Bannister accomplish his goal by being his “rabbits.”
- 6 In track and field, rabbits are runners who enter the race solely to pace a teammate for a segment of the course. Typically, a runner settles in behind the rabbit and allows the rabbit to set an appropriate tempo. Additionally, by running behind the rabbit, the runner conserves about 15 percent of his or her effort. When the starting pistol fired, Brasher pounced into the lead, and Bannister followed behind his first rabbit.
- 7 Propelled by the excitement, Bannister lost his instinctive feel for his pace and shouted “Faster!” at Brasher. Brasher, however, remained composed and maintained his current steady but grueling pace, completing the first two laps in a desirable one minute and fifty-eight seconds. Then Chataway surged forward, leading Bannister at this same punishing rate for another lap and a half. At the beginning of the back straightaway of the track, Bannister bolted past Chataway. Bannister said, “I felt that the moment of a lifetime had come. There was no pain, only a great unity of movement and aim.” Bannister crossed the finish line in 3 minutes 59.4 seconds. The ecstatic crowd erupted the moment the timekeeper announced the word “three.”
- 8 Soon after Bannister’s achievement, four other athletes matched his performance. A new mindset had taken root among runners. Over the years, the record continued to fall. However, the current record, 3 minutes 43.13 seconds, has stood unbroken since 1999. Some question whether this record represents the limits of human ability. But perhaps there is another Bannister, an athlete who, with willpower and dedication, will accomplish the miraculous.

A Miracle Mile

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The words “feat,” “humanly impossible,” and “impenetrable barrier” in paragraph 1 affect the tone of the paragraph because they

- A. highlight the idea that only the most skilled runners would be able to run a four-minute mile.
- B. emphasize the idea that running a mile in less than four minutes was a seemingly unattainable goal.
- C. convey the competitiveness among elite runners to consistently set and break speed records.
- D. show the intensity of the training programs athletes endure in order to achieve their goals.

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A Miracle Mile

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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Read these sentences from paragraph 7.

Bannister said, “I felt that the moment of a lifetime had come. There was no pain, only a great unity of movement and aim.”

The sentences contribute to the development of ideas in the passage by showing that Bannister

- A. knew that he was about to achieve the goal he had worked toward.
- B. was no longer experiencing personal disappointment from his past failure in the Olympics.
- C. felt grateful to his teammates for helping him take the lead.
- D. was satisfied that his training had helped him perfect his running technique.

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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.

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Which sentence **best** supports the idea that Bannister needed an alternative to “logical planning” (paragraph 3) in order to accomplish his goal?

- A. “Bannister’s performance was a disappointment for him and his country, Great Britain.” (paragraph 2)
- B. “The amateur athlete decided to use intensive interval training to develop endurance and speed.” (paragraph 3)
- C. “For these workouts, Bannister ran an interval of ten consecutive laps on a quarter-mile track, aiming for sixty seconds each lap.” (paragraph 3)
- D. “Frustrated by the plateau he had reached, Bannister took a break from training and went mountain climbing for three days.” (paragraph 4)

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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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Which sentence from the passage indicates that Bannister nearly made a mistake that would have cost him the world record?

- A. “By early 1954, Bannister had succeeded in lowering his quarter-mile pace to sixty-one seconds, but he had to shave off at least one more second in order to reach his target.” (paragraph 4)
- B. “When the starting pistol fired, Brasher pounced into the lead, and Bannister followed behind his first rabbit.” (paragraph 6)
- C. “Propelled by the excitement, Bannister lost his instinctive feel for his pace and shouted ‘Faster!’ at Brasher.” (paragraph 7)
- D. “At the beginning of the back straightaway of the track, Bannister bolted past Chataway.” (paragraph 7)

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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.

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Bannister’s loss in the 1952 Olympics influenced his decision to pursue breaking the four-minute-mile barrier by

- A. allowing him to recognize his weaknesses and improve his running ability.
- B. prompting him to take a different approach to his regular training.
- C. motivating him to prove to himself that he could set and achieve a goal.
- D. giving him the opportunity to reach a goal no runner had ever accomplished.

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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.

There are no more questions for this passage set.

Use the review button  to return to any questions about the passage you have just read.

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Passage 33

Excerpt from *In Search of the Unknown*

by Robert W. Chambers

- 1 It was at that time the policy of the trustees and officers of the Zoological Gardens neither to employ collectors nor to send out expeditions in search of specimens. The society decided to depend upon voluntary contributions, and I was always busy, part of the day, in dictating answers to correspondents who wrote offering their services as hunters of big game, collectors of all sorts of fauna, trappers, snarers, and also to those who offered specimens for sale, usually at exorbitant rates.
- 2 To the proprietors of . . . many lynxes, moth-eaten coyotes, and dancing bears I returned courteous but uncompromising refusals—of course, first submitting all such letters, together with my replies, to Professor Farrago.
- 3 One day towards the end of May, however, just as I was leaving Bronx Park to return to town, Professor Lesard, of the reptilian department, called out to me that Professor Farrago wanted to see me a moment; so I . . . retraced my steps to the temporary, wooden building occupied by Professor Farrago, general superintendent of the Zoological Gardens. The professor, who was sitting at his desk before a pile of letters and replies submitted for approval by me, pushed his glasses down and looked over them at me with a whimsical smile that suggested amusement, impatience, annoyance, and perhaps a faint trace of apology.
- 4 "Now, here's a letter," he said, with a deliberate gesture towards a sheet of paper impaled on a file—"a letter that I suppose you remember." He disengaged the sheet of paper and handed it to me.
- 5 "Oh yes," I replied, with a shrug; "of course the man is mistaken—or—"
- 6 "Or what?" demanded Professor Farrago, tranquilly, wiping his glasses.
- 7 "—Or a liar," I replied.
- 8 After a silence he leaned back in his chair and bade me read the letter to him again, and I did so with a contemptuous tolerance for the writer, who must have been either a very innocent victim or a very stupid swindler. I said as much to Professor Farrago, but, to my surprise, he appeared to waver.
- 9 "I suppose," he said, with his near-sighted, embarrassed smile, "that nine hundred and ninety-nine men in a thousand would throw that letter aside and condemn the writer as a liar or a fool?"
- 10 "In my opinion," said I, "he's one or the other."
- 17 "He isn't—in mine," said the professor, placidly.
- 32 "What!" I exclaimed. "Here is a man living all alone on a strip of rock and sand between the wilderness and the sea, who wants you to send somebody to take charge of a bird that doesn't exist!"
- 13 "How do you know," asked Professor Farrago, "that the bird in question does not exist?"
- 38 "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."
- 15 "Oh, you young fellows," said the professor, smiling wearily, "you embark on a theory for destinations that don't exist."
- 38 He leaned back in his chair, his amused eyes searching space for the imagery that made him smile.
- 17 "Like swimming squirrels, you navigate with the help of Heaven and a stiff breeze, but you never land where you hope to—do you?"
- 18 Rather red in the face, I said: "Don't you believe the great auk to be extinct?"
- 19 "Audubon saw the great auk."
- 26 "Who has seen a single specimen since?"
- 21 "Nobody—except our correspondent here," he replied, laughing.
- 22 I laughed, too, considering the interview at an end, but the professor went on, coolly:
- 23 "Whatever it is that our correspondent has—and I am daring to believe that it *is* the great auk itself—I want you to secure it for the society."
- 29 When my astonishment subsided my first conscious sentiment was one of pity. Clearly, Professor Farrago was on the verge of dotage—ah, what a loss to the world!
- 29 I believe now that Professor Farrago perfectly interpreted my thoughts, but he betrayed neither resentment nor impatience. 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.
- 26 Together we made out a list of articles necessary for me and itemized the expenses I might incur, and I set a date for my return, allowing no margin for a successful termination to the expedition.
- 27 "Never mind that," said the professor. "What I want you to do is to get those birds here safely. Now, how many men will you take?"
- 38 "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."
- 29 "Very well," said Professor Farrago, good-humoredly, "you shall have all the assistance you may require. Can you leave to-night?"
- 30 The old gentleman was certainly prompt. I nodded, half-sulkily, aware of his amusement.
- 31 "So," I said, picking up my hat, "I am to start north to find a place called Black Harbor, where there is a man named Halyard who possesses, among other household utensils, two extinct great auks—"
- 32 We were both laughing by this time. I asked him why on earth he credited the assertion of a man he had never before heard of.
- 32 "I suppose," he replied, with the same half-apologetic, half-humorous smile, "it is instinct. I feel, somehow, that this man Halyard *has* got an auk—perhaps two. I can't get away from the idea that we are on the eve of acquiring the rarest of living creatures. It's odd for a scientist to talk as I do; doubtless you're shocked—admit it, now!"
- 38 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.
- 38 "If he has—" I began, then stopped.
- 26 The professor and I looked hard at each other in silence.
- 32 "Go on," he said, encouragingly.
- 38 But I had nothing more to say, for the prospect of beholding with my own eyes a living specimen of the great auk produced a series of conflicting emotions within me which rendered speech profanely superfluous.

From *IN SEARCH OF THE UNKNOWN* by Robert W. Chambers—Public Domain

Audubon: John James Audubon, an ornithologist and artist who created scientific illustrations of birds
dotage: a loss of reasoning brought about by old age

Excerpt from *In Search of the Unknown*

by Robert W. Chambers

1 It was at that time the policy of the trustees and officers of the Zoological Gardens neither to employ collectors nor to send out expeditions in search of specimens. The society decided to depend upon voluntary contributions, and I was always busy, part of the day, in dictating answers to correspondents who wrote offering their services as hunters of big game, collectors of all sorts of fauna, trappers, snarers, and also to those who offered specimens for sale, usually at exorbitant rates.

2 To the proprietors of . . . mangy lynxes, moth-eaten coyotes, and dancing bears I returned courteous but uncompromising refusals—of course, first submitting all such letters, together with my replies, to Professor Farrago.

3 One day towards the end of May, however, just as I was leaving Bronx Park to return to town, Professor Lesard, of the reptilian department, called out to me that Professor Farrago wanted to see me a moment: so

Read paragraph 2 from the excerpt.

To the proprietors of . . . mangy lynxes, moth-eaten coyotes, and dancing bears I returned courteous but uncompromising refusals—of course, first submitting all such letters, together with my replies, to Professor Farrago.

This paragraph helps develop the plot by establishing that the narrator

- A. dislikes writing refusal letters for the animals offered to the zoological society.
- B. attempts to predict what the professor would say in the refusal letters.
- C. believes that many of the animals offered are not acceptable for the zoological society.
- D. resents the professor's insistence on reviewing the refusal letters.

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Excerpt from *In Search of the Unknown*

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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Read this sentence from paragraph 3.

The professor, who was sitting at his desk before a pile of letters and replies submitted for approval by me, pushed his glasses down and looked over them at me with a whimsical smile that suggested amusement, impatience, annoyance, and perhaps a faint trace of apology.

What does the phrase “a faint trace of apology” convey about the professor?

- A. It indicates that the professor feels bad that he has to call the narrator to his office after work.
- B. It shows that the professor is hesitant to share his opinions with the narrator.
- C. It implies that the professor is uncomfortable criticizing the narrator’s work.
- D. It suggests that the professor knows that the conversation will be frustrating for the narrator.

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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).

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How does the exchange between the professor and the narrator in paragraphs 8–11 contribute to the development of the characters?

- A. It establishes the conflict between the professor and the narrator concerning the validity of the letter.
- B. It suggests a theme of collaboration because the narrator and the professor regularly work together.
- C. It reveals the characters' traits by contrasting the narrator's distrust with how easily the professor is deceived by what he reads.
- D. It hints that the resolution will involve the narrator accepting the professor's opinion about the content of the letter.

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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.

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The professor's observations in paragraphs 15–17 create tension in the excerpt by causing the narrator to feel

- A. flustered by the professor's criticism of his logic.
- B. annoyed by the professor's sarcasm about his inexperience.
- C. confused by the professor's lack of respect for his opinion.
- D. frustrated by the professor's lack of interest in his theory.

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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.

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How does the interaction between the narrator and the professor in paragraphs 26–28 contribute to the development of the theme?

- A. It illustrates the professor's patience as the narrator argues against making the expedition.
- B. It reveals the narrator's frustration with his limited role in making decisions for the zoological society.
- C. It emphasizes the professor's desire to acquire new specimens for the zoological society at any cost.
- D. It shows the narrator's acceptance of his assignment despite his personal objections.

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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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Which sentence from the excerpt **best** explains why the professor is eager to send the narrator on an expedition?

- A. "I believe now that Professor Farrago perfectly interpreted my thoughts, but he betrayed neither resentment nor impatience." (paragraph 25)
- B. "Together we made out a list of articles necessary for me and itemized the expenses I might incur, and I set a date for my return, allowing no margin for a successful termination to the expedition." (paragraph 26)
- C. " 'What I want you to do is to get those birds here safely.' " (paragraph 27)
- D. " 'I can't get away from the idea that we are on the eve of acquiring the rarest of living creatures.' " (paragraph 33)

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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.

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How does paragraph 34 help develop the plot of the excerpt?

- A. It shows that the narrator is beginning to consider the possibility of finding the great auks.
- B. It demonstrates that the narrator is struggling to understand why the professor thinks the great auks exist.
- C. It establishes that the narrator is willing to let the professor overrule him about the great auks.
- D. It emphasizes that the narrator feels a sense of urgency to complete the expedition to locate the great auks.

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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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Which sentence **best** demonstrates the professional relationship between the narrator and the professor?

- A. "He disengaged the sheet of paper and handed it to me." (paragraph 4)
- B. "Clearly, Professor Farrago was on the verge of dotage—ah, what a loss to the world!" (paragraph 24)
- C. "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. "'Very well,' said Professor Farrago, good-humoredly, 'you shall have all the assistance you may require.'" (paragraph 29)

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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.

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How does the author develop the contrast between the narrator's point of view and the professor's point of view?

- A. by providing both the narrator's and professor's thoughts on how age and experience influence each other's reasoning
- B. by using the conversation between the narrator and the professor to emphasize their reactions to the letter
- C. by describing the professor's persistent efforts to change the narrator's mind about the letter
- D. by including dialogue that explains why the professor is the supervisor and the narrator is his subordinate

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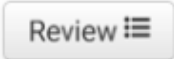
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The question asks how the author develops the contrast between the narrator's point of view and the professor's point of view.

- 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.

There are no more questions for this passage set.

Use the review button  to return to any questions about the passage you have just read.

Once you select the blue arrow  at the top of this screen, you will **not** be able to return to any questions about this passage.

Passage 4 4

Located underground near Geneva, Switzerland, the Large Hadron Collider (LHC) helps scientists study and understand how the smallest particles of matter interact with one another. The LHC propels atomic particle beams along a 17-mile-long ring.

Looking for the Smallest Spark of Everything

There are the things the world is made of,
things we can see and feel, and then
there are the things even smaller, things that seem
to exist only when we are looking right at them.

5 So beneath the level of molecules are atoms,
and beneath the level of atoms, we find
protons, electrons, neutrons; and beneath that—
what, exactly? Because we are talking about
everything here: your fingernail,
10 the candy at the back of your mouth,
the coffee your teacher drank this morning,
your little sister, and the stuffed dog
she used to carry around with her everywhere.
And everywhere.

15 Everything and everywhere
are made up of the same stuff, whatever
it is. How do we find it? We can listen for it
in the wavelengths from deep space,
talking back to us from unimaginable
20 distances. Or we can build long,
deep circular tunnels beneath the surface
of this Earth and race particles
(like racing cars, only very tiny cars
flashing along at close to the speed of light)
25 until everything we think we know
bangs against everything else we know.

And there, in the explosion, in the darkness,
briefly incandescent, they appear:
the quarks, the leptons, and the bosons;
30 the baryons and the mesons. Their names
sound like dinosaurs or maybe bands
playing terrible music in someone's garage.

The one thing we know for sure
is that they spin. This is how gravity
35 enters our world, how our world is held
both together and apart, what keeps
together the pencil in your hand right now

as well as separate from, say,
Jupiter. They spin, and it is only down there
40 in the darkness—in the vast garage
where physicists jot down
what they can, whatever seems most real—
that they let us perceive their wild dancing,
combusting to the music they make.

Located underground near Geneva, Switzerland, the Large Hadron Collider (LHC) helps scientists study and understand how the smallest particles of matter interact with one another. The LHC propels atomic particle beams along a 17-mile-long ring.

Looking for the Smallest Spark of Everything

There are the things the world is made of,
things we can see and feel, and then
there are the things even smaller, things that seem
to exist only when we are looking right at them.

- 5 So beneath the level of molecules are atoms,
and beneath the level of atoms, we find
protons, electrons, neutrons; and beneath that—
what, exactly? Because we are talking about
everything here: your fingernail,
10 the candy at the back of your mouth,
the coffee your teacher drank this morning,
your little sister, and the stuffed dog
she used to carry around with her everywhere

Read lines 5–8 from the poem.

**So beneath the level of molecules are atoms,
and beneath the level of atoms, we find
protons, electrons, neutrons; and beneath that—
what, exactly?**

The lines help develop a central idea of the poem by revealing the speaker's

- A. interest in determining how the parts of matter work together.
- B. curiosity about what makes up matter.
- C. desire to prove that particles make up matter.
- D. questions about what tools are needed to study matter.

Looking for the Smallest Spark in Everything

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).

Located underground near Geneva, Switzerland, the Large Hadron Collider (LHC) helps scientists study and understand how the smallest particles of matter interact with one another. The LHC propels atomic particle beams along a 17-mile-long ring.

Looking for the Smallest Spark of Everything

There are the things the world is made of,
things we can see and feel, and then
there are the things even smaller, things that seem
to exist only when we are looking right at them.

- 5 So beneath the level of molecules are atoms,
and beneath the level of atoms, we find
protons, electrons, neutrons; and beneath that—
what, exactly? Because we are talking about
everything here: your fingernail,
10 the candy at the back of your mouth,
the coffee your teacher drank this morning,
your little sister, and the stuffed dog
she used to carry around with her everywhere

The main purpose of the comparison in lines 23–24 of the poem is to show

- A. that the particles' size makes them difficult to see.
- B. how the particles move within the tunnel.
- C. that the particles have a familiar shape.
- D. how the particles can be seen only in darkness.

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.

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Read lines 27–28 from the poem.

**And there, in the explosion, in the darkness,
briefly incandescent, they appear:**

The imagery in the lines reveals that the speaker

- A. envies the physicists who research colliding particles.
- B. has personally observed colliding particles.
- C. admires the powerful reactions that occur when particles collide.
- D. has a simplistic understanding of how particles collide.

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 down there / in the darkness—in the vast garage / where physicists jot down / what they can, whatever seems most real— / that they let us perceive their wild dancing” [lines 39–43]).
- 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.

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everything here: your fingernail,
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your little sister, and the stuffed dog
she used to carry around with her everywhere

Read lines 30–32 from the poem.

**Their names
sound like dinosaurs or maybe bands
playing terrible music in someone’s garage.**

The speaker refers to familiar objects and events in the lines **most likely** to

- A. explain confusing information in simple terms to help the reader understand more about the topic.
- B. demonstrate how scientific ideas can be explained by describing situations that many people are familiar with.
- C. emphasize that the process being used to research particles is still in the early stages of development.
- D. suggest that the scientific language used to describe particles seems silly by making a humorous comparison.

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.

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your little sister, and the stuffed dog
she used to carry around with her everywhere

Read lines 36–39 from the poem.

**both together and apart, what keeps
together the pencil in your hand right now
as well as separate from, say,
Jupiter.**

The poet includes these lines **most likely** to emphasize that

- A. it is important for physicists to continue their research about particles.
- B. these particles have a powerful effect on everything.
- C. the discoveries about particles provide little information.
- D. the study of particles and the study of objects in space are similar.

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.

propels atomic particle beams along a 17-mile-long ring.

Looking for the Smallest Spark of Everything

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things we can see and feel, and then
there are the things even smaller, things that seem
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- 5 So beneath the level of molecules are atoms,
and beneath the level of atoms, we find
protons, electrons, neutrons; and beneath that—
what, exactly? Because we are talking about
everything here: your fingernail,
10 the candy at the back of your mouth,
the coffee your teacher drank this morning,
your little sister, and the stuffed dog
she used to carry around with her everywhere.
And everywhere.
- 15 Everything and everywhere
are made up of the same stuff, whatever
it is. How do we find it? We can listen for it

Read lines 39–44 from the poem.

**They spin, and it is only down there
in the darkness—in the vast garage
where physicists jot down
what they can, whatever seems most real—
that they let us perceive their wild dancing,
combusting to the music they make.**


The lines reveal the speaker's


- A. frustration with the research facilities physicists use.
- B. belief that physicists are frantically working toward a new discovery.
- C. interest in physicists and their study of particles.
- D. certainty that physicists are working in secrecy.

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.

There are no more questions for this passage set.

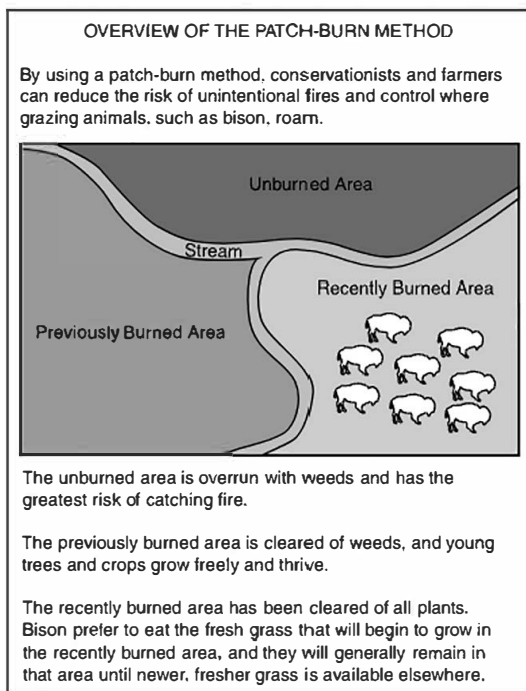
Use the review button  to return to any questions about the passage you have just read.

Once you select the blue arrow  at the top of this screen, you will **not** be able to return to any questions about this passage.

Passage 5

Using Fire to Keep a Prairie Healthy

- 3 Inside the 40,000-acre Joseph H. Williams Tallgrass Prairie Preserve in northern Oklahoma, herds of bison roam on the scenic land that is home to hundreds of different species of plants and animals. While one of the greatest threats to the prairie is wildfire, the use of controlled fires is actually an effective way to protect this idyllic landscape.
- 2 Fires that are started by lightning or other natural circumstances are inevitable, and the results can be disastrous. However, hundreds of years ago the American Indian people who inhabited the Great Plains area between Minnesota and Texas realized that these fires could also be helpful. The bison in the area seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas. The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops.
- 3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land management. Intentionally burning a portion of land can dramatically improve the quality of the vegetation that regrows there. The 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. Additionally, the process of burning excess plant matter adds nitrogen, an essential element for plant growth, to the soil.
- 4 One common target of controlled burns at the preserve and the surrounding area is the invasive red cedar tree. A single red cedar tree can consume up to 40 gallons of water per day, taking this vital resource away from other plant life. These tall trees also cast shade that prevents sunlight from reaching the plants beneath them. The fast-growing red cedar trees tend to crowd out prairie grasses, the primary food source for wild and domestic animals that make the prairie their home. An imbalance in one component of the prairie's ecosystem affects the entire web of life. Controlled burns help maintain this ecosystem's delicate balance.
- 3 Of course, these controlled fires are intended to burn only a portion of an area. A total burn, which is a risk with an uncontrolled wildfire, would destroy all wildlife as well as the crops farmers plant for income. The key to using controlled fires is knowing which areas of land to burn and when. Conservation experts at the preserve employ the "patch-burn" approach, meaning they rotate which portion of land is burned each year. They 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. This patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate. The following year, conservationists will burn a different section of the preserve, while the land burned the previous year regrows healthier than before.
- 6 Researchers have tracked and studied the variety of plant species and animals that live on the preserve, and their 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 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. Burning land to make it healthy may seem counterintuitive, but strategic controlled fires have helped the prairie sustain life for hundreds of years and, with careful management, will continue to do so.



Using Fire to Keep a Prairie Healthy

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2 Fires that are started by lightning or other natural circumstances are inevitable, and the results can be disastrous. However, hundreds of years ago the American Indian people who inhabited the Great Plains area between Minnesota and Texas realized that these fires could also be helpful. The bison in the area seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas. The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops.

3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land

According to the passage, how did fires started by natural causes prompt American Indians to begin practicing controlled burns?

- A. by drawing animals in to the area to feed on the new growth sprouting from the burned land
- B. by destroying tall trees and reducing the shade that had hindered the growth of planted crops
- C. by burning off excess vegetation and increasing the availability of nutrients for the remaining plants
- D. by causing changes to the bison's migration habits as bison herds fled from the wildfires on the prairie

Using Fire to Keep a Prairie Healthy

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2 Fires that are started by lightning or other natural circumstances are inevitable, and the results can be disastrous. However, hundreds of years ago the American Indian people who inhabited the Great Plains area between Minnesota and Texas realized that these fires could also be helpful. The bison in the area seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas. The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops.

Using Fire to Keep a Prairie Healthy

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.

Using Fire to Keep a Prairie Healthy

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2 Fires that are started by lightning or other natural circumstances are inevitable, and the results can be disastrous. However, hundreds of years ago the American Indian people who inhabited the Great Plains area between Minnesota and Texas realized that these fires could also be helpful. The bison in the area seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas. The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops.

3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land

Targeting red cedar trees in controlled burns affects the animals that live on the prairie mostly by

- A. ensuring that the animals' main food source has the conditions needed for it to thrive.
- B. endangering the animals that live near the trees scheduled for removal.
- C. making sure that the water supply for the animals is sufficient.
- D. reducing the animals' natural source of shade and protection from the elements.

Using Fire to Keep a Prairie Healthy

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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.

Using Fire to Keep a Prairie Healthy

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3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land

Read this sentence from paragraph 6.

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.

The author includes this sentence to show that

- A. the conservationists are better qualified to lead preservation efforts than farmers are.
- B. the conservationists are eager to involve others in the preservation of the prairie.
- C. the conservationists' efforts will restore the original beauty and biodiversity of the region.
- D. the conservationists' training program should serve as a model for other conservation organizations.

Using Fire to Keep a Prairie Healthy

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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.

Using Fire to Keep a Prairie Healthy

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3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land

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. "While one of the greatest threats to the prairie is wildfire, the use of controlled fires is actually an effective way to protect this idyllic landscape." (paragraph 1)
- B. "The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops." (paragraph 2)
- C. "This patch burning contains the fire within a specific area and allows animals in the burn area to safely relocate." (paragraph 5)
- D. "The following year, conservationists will burn a different section of the preserve, while the land burned the previous year regrows healthier than before." (paragraph 5)

Using Fire to Keep a Prairie Healthy

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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.

Using Fire to Keep a Prairie Healthy

1 Inside the 40,000-acre Joseph H. Williams Tallgrass Prairie Preserve in northern Oklahoma, herds of bison roam on the scenic land that is home to hundreds of different species of plants and animals. While one of the greatest threats to the prairie is wildfire, the use of controlled fires is actually an effective way to protect this idyllic landscape.

2 Fires that are started by lightning or other natural circumstances are inevitable, and the results can be disastrous. However, hundreds of years ago the American Indian people who inhabited the Great Plains area between Minnesota and Texas realized that these fires could also be helpful. The bison in the area seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas. The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops.

3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land

Read this sentence from paragraph 6.

Burning land to make it healthy may seem counterintuitive, but strategic controlled fires have helped the prairie sustain life for hundreds of years and, with careful management, will continue to do so.

The words "counterintuitive" and "strategic" in the sentence convey the idea that

- A. the safest methods are sometimes the least effective at solving complex challenges.
- B. thorough investigation of uncommon methodologies can lead to beneficial results.
- C. detailed planning can ensure that a potentially destructive action has a positive impact.
- D. plans that entail a certain amount of risk almost always result in success.

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2 Fires that are started by lightning or other natural circumstances are inevitable, and the results can be disastrous. However, hundreds of years ago the American Indian people who inhabited the Great Plains area between Minnesota and Texas realized that these fires could also be helpful. The bison in the area seemed to prefer grazing on tender new grass on the recently burned land rather than on grass in the unburned areas. The American Indian people began to deliberately burn areas of land for bison to graze on, which enticed the herds away from the people's crops.

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.

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3 Today conservationists at the Tallgrass Prairie Preserve and farmers in the Great Plains continue to use controlled burns for land

With which statement would the author **most likely** agree?

- A. It is important to explain the purposes and the risks of controlled burns to the people living near a proposed burn area.
- B. It is necessary to thoroughly examine a particular region in order to plan and execute a successful controlled burn.
- C. Monitoring animals' reactions after a controlled burn on the prairie is a minor part of scientists' research.
- D. Conservationists should consider the helpful aspects of invasive species before executing a controlled burn.

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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.

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How do the diagram and its text provide additional support for the topic presented in the passage?

- A. by depicting how the landscape in a given area changes as the patch-burn method is applied
- B. by indicating that patch-burn fires are best suited for use in areas with certain features
- C. by revealing that the patch-burn method is used primarily on uninhabited areas of land
- D. by comparing the size of the area burned by the patch-burn method with that of unburned areas

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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.”

There are no more questions for this passage set.

Use the review button  to return to any questions about the passage you have just read.

Once you select the blue arrow  at the top of this screen, you will **not** be able to return to any questions about this passage.

Passage 6

Letter from Brooklyn

by Jacob Scheier

I can already see how this will end.
How I will grow tired of the bridge's
steep incline, and the absent-minded tourists
wandering into the bicycle path.

5 The weather will turn cold.

But that all happens later.

For now it is the early edge of fall,
leaves green still while the air narrows,
is slightly crisp, almost grazing

10 the hair of my arm like a passing stranger,
as though the air has been forced into intimacy
by the brevity of daylight.

But when it starts darkening at 4,
this closeness, I know, will be a felt distance,

15 like someone drawing your attention
to their lack of intimacy.

These days I am still walking at a cathedral pace
beneath the branches bending across avenues,
brownstones like rows of lived-in chapels,

20 like a pop-up picture book I could have had as a child,
but didn't. How Brooklyn makes me nostalgic
for the moment I am walking inside of.

These late afternoons filled
with a loneliness that makes me feel

25 distinctly myself, and an awareness
of how rare that is.

"Letter from Brooklyn" from LETTER FROM BROOKLYN: POEMS by Jacob Scheier, published by ECW Press. Copyright © 2013 by Jacob Scheier. All rights reserved.

brevity: briefness

cathedral: meditative

chapels: private places of prayer or worship

nostalgic: yearning for the past

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How does the structure of the poem affect the poem's meaning?

- A. The lack of a rhyming pattern suggests that the beauty of each passing day is unique.
- B. The lengths of the sentences represent the complexity of the thoughts being represented.
- C. The use of complete sentences implies the speaker's appreciation for the clear beginning and ending of each season.
- D. The single long stanza reflects the continuous flow of the speaker's thoughts.

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These days I am still walking at a cathedral pace

Letter from Brooklyn

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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to their lack of intimacy.

Which lines support the idea that a change in the weather will lessen the speaker's appreciation for the city?

- A. "as though the air has been forced into intimacy / by the brevity of daylight." (lines 11–12)
- B. "But when it starts darkening at 4, / this closeness, I know, will be a felt distance," (lines 13–14)
- C. "like someone drawing your attention / to their lack of intimacy." (lines 15–16)
- D. "These days I am still walking . . . / beneath the branches bending across avenues," (lines 17–18)

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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.

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Read lines 5–6 from the poem.

**The weather will turn cold.
But that all happens later.**

How do the lines develop a central theme of the poem?

- A. They highlight a contrast between the different seasons.
- B. They show the sequence of the changes that are expected to occur.
- C. They warn about a problem that requires thoughtful preparation.
- D. They emphasize the importance of valuing the present.

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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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Read lines 7–9 from the poem.

**For now it is the early edge of fall,
leaves green still while the air narrows,
is slightly crisp,**

The word choice in the lines helps convey the speaker's belief that

- A. the beauty of the current season should still be appreciated.
- B. the changes in the weather signify the end of the most pleasant season.
- C. the transition from one season to another happens swiftly and without warning.
- D. the change in the weather is so subtle that people rarely observe or feel it.

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These days I am still walking at a cathedral pace

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.

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Which idea does the comparison of the brownstone houses to “a pop-up picture book I could have had as a child, / but didn’t” in lines 20–21 convey?

- A. It reveals that some people are still influenced by powerful images from childhood.
- B. It indicates that the neighborhood the speaker is walking through is charming and appealing.
- C. It suggests that the speaker has wanted to live in the neighborhood since childhood.
- D. It suggests that people often experience lingering regret from their past.

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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.

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Read these lines from the poem.

I can already see how this will end. (line 1)

**How Brooklyn makes me nostalgic
for the moment I am walking inside of.** (lines 21–22)

The lines develop a central idea of the poem by

- A. suggesting the speaker's desire to find a way to break free from the repetitive pattern of daily life.
- B. revealing the speaker's feelings of disappointment over the predictable change in season.
- C. emphasizing the speaker's awareness of the future significance of the present moment in the setting.
- D. showing the speaker's anticipation of specific emotions caused by an intimate knowledge of the setting.

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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.

Letter from Brooklyn

by Jacob Scheier

I can already see how this will end.
How I will grow tired of the bridge's
steep incline, and the absent-minded tourists
wandering into the bicycle path.

- 5 The weather will turn cold.
But that all happens later.
For now it is the early edge of fall,
leaves green still while the air narrows,
is slightly crisp, almost grazing
10 the hair of my arm like a passing stranger,
as though the air has been forced into intimacy
by the brevity of daylight.
But when it starts darkening at 4,
this closeness, I know, will be a felt distance,
15 like someone drawing your attention
to their lack of intimacy.

The speaker's thoughts throughout the poem develop a theme by showing that

- A. although people may hold expectations for the future, some people long for present experiences while they are still happening.
- B. though people come from different places, most people feel drawn to the special charm a city holds.
- C. although people can make decisions about their life, there will always be some things beyond their control.
- D. though general expectations exist, people have no way of knowing what a given day will actually bring.

Letter from Brooklyn

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this closeness, I know, will be a felt distance,


15 like someone drawing your attention
to their lack of intimacy.


These days I am still walking at a cathedral pace

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.

There are no more questions for this passage set.

Use the review button  to return to any questions about the passage you have just read.

Once you select the blue arrow  at the top of this screen, you will **not** be able to return to any questions about this passage.

English Language Arts

REVISING/EDITING PART A

DIRECTIONS: Read the text or texts that follow and answer the related questions. You will be asked to improve the writing quality of each text and to correct errors so that each text follows the conventions of standard written English. You should reread relevant parts of each text, while being mindful of time, before selecting the **best** answer for each question.

The End of an Era

(1) In 2004, the National Aeronautics and Space Administration (NASA) landed a rover, or robotic vehicle, named *Opportunity* on the surface of Mars. (2) The rover's mission was to search for evidence of water and life on the planet. (3) The rover was designed to gather data on Mars for about 90 days, but *Opportunity's* assignment did not come to an end until nearly 15 years later in 2019.

(4) During the rover's mission, a high-resolution camera on the rover's robotic arm took magnified photographs of the surface of Mars. (5) The photographs revealed small round rocks scattered across the surface of the planet. (6) The scientists nicknamed these rocks "blueberries" based on the rocks' resemblance to the fruit. (7) These rocks were important because their spherical shape suggested that liquid water may have flowed over them for a substantial amount of time.

(8) *Opportunity* continued to provide valuable data about craters and other surface features. (9) Throughout the mission, the rover traveled a total of 28.06 miles across Mars' surface. (10) When *Opportunity* had traveled nearly the length of a marathon, scientists celebrated the accomplishment by naming the valley that the rover was in Marathon Valley. (11) However, in 2018, a dust storm spread all over the planet, putting the rover's progress on hold.

(12) Prior to this planet-wide dust storm, minor dust storms had periodically deposited a layer of dust onto the solar panels of the rover. (13) These prevented it from charging its batteries. (14) Scientists then had to rely on the passing winds and dust devils to clean off the solar panels. (15) After the massive 2018 dust storm subsided, scientists expected to be able to reestablish communication with *Opportunity*. (16) They made repeated attempts but to no avail. (17) In 2019, NASA finally declared *Opportunity's* mission complete.

(18) *Opportunity* was an important asset in scientists' study of Mars; it returned valuable data about our neighbor planet and survived powerful dust storms. (19) NASA described the mission of *Opportunity* as "one of the most successful and enduring feats of interplanetary exploration." (20) Even though this rover's journey ended, other rovers still roam the surface of Mars.

The End of an Era

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(8) *Opportunity* continued to provide valuable data about craters and other surface features. (9) Throughout the mission, the rover traveled a total of 28.06 miles across Mars' surface. (10) When *Opportunity* had

Which sentence should follow sentence 3 to **best** introduce the topic of the passage?

- A. Despite the challenges of operating on the surface of another planet, the *Opportunity* rover made many valuable contributions to the field of space research.
- B. The *Opportunity* rover mission was a success because it informed NASA scientists about how water might have existed on Mars.
- C. Throughout the historic mission of the *Opportunity* rover, NASA scientists had to overcome challenges created by the flaws in the rover's design.
- D. The *Opportunity* rover mission surpassed the original timeline of the assignment and allowed scientists to collect additional data about the planet Mars.

The End of an Era

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The End of an Era

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.

The End of an Era

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(8) *Opportunity* continued to provide valuable data about craters and other surface features. (9) Throughout the mission, the rover traveled a total of 28.06 miles across Mars' surface. (10) When *Opportunity* had

Which word should be added to the beginning of sentence 8 to provide a better transition to the third paragraph (sentences 8–11)?

Move the correct answer to the box.

Overall,

Furthermore,

Meanwhile,

Consequently,

(8) *Opportunity* continued to provide valuable data about craters and other surface features.

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).

- “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.
- “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.
- **“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.
- “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).

The End of an Era

(1) In 2004, the National Aeronautics and Space Administration (NASA) landed a rover, or robotic vehicle, named *Opportunity* on the surface of Mars. (2) The rover's mission was to search for evidence of water and life on the planet. (3) The rover was designed to gather data on Mars for about 90 days, but *Opportunity's* assignment did not come to an end until nearly 15 years later in 2019.

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(8) *Opportunity* continued to provide valuable data about craters and other surface features. (9) Throughout the mission, the rover traveled a total of 28.06 miles across Mars' surface. (10) When *Opportunity* had

Which revision of sentence 11 **best** maintains the formal style established in the passage?

- A. However, in 2018, a dust storm covered the planet, bringing the rover's progress to a standstill.
- B. However, in 2018, a dust storm shrouded the planet, impermanently halting the rover's progress.
- C. However, in 2018, a dust storm enveloped the whole of the planet, arresting the rover's progress for a time.
- D. However, in 2018, a dust storm covered up the whole planet, which quickly brought a stop to the progress of the rover.

The End of an Era

(1) In 2004, the National Aeronautics and Space Administration (NASA) landed a rover, or robotic vehicle, named *Opportunity* on the surface of Mars. (2) The rover's mission was to search for evidence of water and life on the planet. (3) The rover was designed to gather data on Mars for about 90 days, but *Opportunity's* assignment did not come to an end until nearly 15 years later in 2019.

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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.

The End of an Era

(1) In 2004, the National Aeronautics and Space Administration (NASA) landed a rover, or robotic vehicle, named *Opportunity* on the surface of Mars. (2) The rover's mission was to search for evidence of water and life on the planet. (3) The rover was designed to gather data on Mars for about 90 days, but *Opportunity's* assignment did not come to an end until nearly 15 years later in 2019.

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Read this sentence.

One of *Opportunity's* major contributions was finding possible evidence of the presence of water on Mars.

Where should the sentence be added to the passage?

- A. between sentences 2 and 3
- B. at the beginning of the second paragraph (before sentence 4)
- C. at the end of the second paragraph (after sentence 7)
- D. between sentences 8 and 9

The End of an Era

(1) In 2004, the National Aeronautics and Space Administration (NASA) landed a rover, or robotic vehicle, named *Opportunity* on the surface of Mars. (2) The rover's mission was to search for evidence of water and life on the planet. (3) The rover was designed to gather data on Mars for about 90 days, but *Opportunity's* assignment did not come to an end until nearly 15 years later in 2019.

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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.

The End of an Era

(1) In 2004, the National Aeronautics and Space Administration (NASA) landed a rover, or robotic vehicle, named *Opportunity* on the surface of Mars. (2) The rover's mission was to search for evidence of water and life on the planet. (3) The rover was designed to gather data on Mars for about 90 days, but *Opportunity's* assignment did not come to an end until nearly 15 years later in 2019.

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What is the **best** way to combine sentences 12 and 13?

- A. Preventing the rover from charging its batteries, minor dust storms had periodically deposited a layer of dust onto the solar panels of the rover prior to this planet-wide dust storm.
- B. Periodically depositing a layer of dust onto the solar panels of the rover prior to this planet-wide dust storm, minor dust storms had prevented it from charging its batteries.
- C. Minor dust storms, prior to this planet-wide dust storm, prevented the rover from charging its batteries because they had periodically deposited a layer of dust onto the solar panels of the rover.
- D. Prior to this planet-wide dust storm, minor dust storms had periodically deposited a layer of dust onto the solar panels of the rover, preventing it from charging its batteries.

The End of an Era


(1) In 2004, the National Aeronautics and Space Administration (NASA) landed a rover, or robotic vehicle, named *Opportunity* on the surface of Mars. (2) The rover's mission was to search for evidence of water and life on the planet. (3) The rover was designed to gather data on Mars for about 90 days, but *Opportunity's* assignment did not come to an end until nearly 15 years later in 2019.


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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.

There are no more questions for this passage set.

Use the review button  to return to any questions about the passage you have just read.

Once you select the blue arrow  at the top of this screen, you will **not** be able to return to any questions about this passage.

English Language Arts
REVISING/EDITING PART B

DIRECTIONS: Read and answer the following questions. You will be asked to recognize and correct errors so that the sentences or short paragraphs follow the conventions of standard written English. As needed, you may use the notepad tool or write on the scrap paper given to you to take notes. You should reread relevant parts of the sentences or paragraphs, while being mindful of time, before selecting the **best** answer for each question.

In September 2016 the National Museum of African American History and Culture opened as part of the Smithsonian **Institution, the** museum is already the Smithsonian's third most popular site. Experts say that they expect this newest Smithsonian facility to welcome nearly 4 million visitors a **year. The** museum features more than 30,000 **objects, including** Muhammad Ali's boxing gloves and a dress sewn by Rosa Parks. A commemorative copy of the Emancipation **Proclamation,** **written** in 1863 during the presidency of Abraham Lincoln, is also on display at the museum.

Which part of the paragraph contains an error in sentence structure?

Select the one error.

The question asks which part of the paragraph contains an error in sentence structure.

- 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].
- 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”).
- 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.
- 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.

Read these sentences.

- (1) Flyby missions near Jupiter have been happening since 1973.
- (2) Flyby missions allow scientists to collect data about Jupiter and its moons.

What is the best way to combine the sentences to clarify the relationship between the ideas?

- A. While flyby missions near Jupiter have been happening since 1973, scientists collect data about the planet and its moons.
- B. Although there have been flyby missions near Jupiter since 1973, they have allowed scientists to collect data about the planet and its moons.
- C. Flyby missions near Jupiter, which allow scientists to collect data about the planet and its moons, have been happening since 1973.
- D. Flyby missions have been happening near Jupiter, but scientists have been collecting data about the planet and its moons since 1973.

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.

Which sentence in the paragraph contains an error in construction and should be revised?

(1) On the evening of July 13, 2019, a major power outage affected the Upper West Side of Manhattan in New York City. (2) Leaving approximately 73,000 residents without electricity for three long hours, lights did not function, refrigerators did not stay cold, and air conditioners did not work. (3) Longtime city residents were particularly confused because an eerily similar event had occurred years earlier—on the exact same day! (4) The famous New York City Blackout of 1977, which lasted for 25 hours, also happened on July 13, an odd coincidence to say the least.

Move the answer to the box. There is only one error in construction.

Sentence 1

Sentence 2

Sentence 3

Sentence 4

Contains an error in construction

The question asks which sentence in the paragraph contains an error in construction.

- 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.
- 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.
- 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.”
- 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.

How should the paragraph be revised?

(1) Danielle spent several hours preparing for an upcoming audition for a play at the community theater. (2) First she did vocal exercises to practice her diction and projection so that her words would carry clearly throughout the large auditorium. (3) Then she studies the text of the monologue to better understand the emotions, and motivations of the character she plans to portray. (4) Finally she recited her monologue in front of a mirror many times, making slight adjustments and improvements to her performance each time.

- A. Sentence 1: Change *spent* to **had spent**, AND insert a comma after *play*.
- B. Sentence 2: Change *did* to **does**, AND insert a comma after *projection*.
- C. Sentence 3: Change *studies* to **studied**, AND delete the comma after *emotions*.
- D. Sentence 4: Change *recited* to **recites**, AND delete the comma after *times*.

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.

MATHEMATICS
IMPORTANT NOTES

1. Formulas and definitions of mathematical terms and symbols are **not** provided.
2. Diagrams other than graphs are **not** necessarily drawn to scale. Do not assume any relationship in a diagram unless it is specifically stated or can be determined from the information given.
3. Assume that a diagram is in one plane unless the question specifically states that it is not.
4. Graphs are drawn to scale. Unless stated otherwise, you can assume relationships according to appearance. For example, lines on a graph that appear to be parallel can be assumed to be parallel. This is also true for concurrent lines, straight lines, collinear points, right angles, etc.

DIRECTIONS:

Solve each problem. Select the answer from the choices given or enter your answer in the space provided. When you are solving problems, you can use the online notepad tool or write on the scrap paper given to you.

Math Item 1

The decimal 0.06 can be written as the fraction $\frac{x}{50}$. What is the value of x ?

- A. 3
- B. 6
- C. 12
- D. 30

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

Math Item 2

The list shows the results of a survey. A survey was taken to see whether students like basketball, soccer, both, or neither. These were the results:

- 25 students like basketball.
- 19 students like soccer.
- 7 students like both basketball and soccer.
- 10 students don't like either basketball or soccer.

Use the information provided to determine how many students were surveyed and how many like only soccer.

Move the correct answer to each box.

12 19 26 3 47 54

There were students surveyed, and students like only soccer.

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: $19 - 7 = 12$

Math Item 3

At a diner, 18 dozen buns were used yesterday for 150 lunch customers. Today, there were 250 lunch customers. Assuming that the bun usage rate is the same for both days, which proportions can be used to determine how many dozen buns are needed for 250 lunch customers?

Select the **three** correct answers.

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

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

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

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

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

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: $150x = 4,500$

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

$$x = 30$$

Math Item 4

Maria is playing a game in which players earn points called minks, zogs, and barts.

$$1 \text{ mink} = 3 \text{ zogs}$$

$$1 \text{ mink} = \frac{1}{4} \text{ bart}$$

Maria has 60 zogs and 24 barts. She wants to exchange her zogs and barts for minks.

How many minks will Maria receive from the exchange?

Enter your answer in the space.

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: $20 + 96 = 116$.

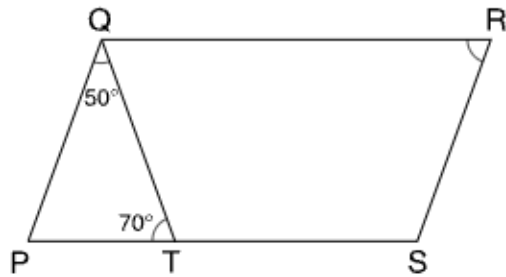
Math Item 5

How many 5-digit numbers can be created using the digits 2, 3, 5, 7, and 8 without repeating any digits within that 5-digit number?

Enter your answer in the space.

(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 $5 \times 4 \times 3 \times 2 \times 1 = 120$.

Math Item 6



In the figure above, PQRS is a parallelogram. The measure of $\angle PQT$ is 50° , and the measure of $\angle PTQ$ is 70° . What is the measure of $\angle QRS$?

- A. 60°
- B. 70°
- C. 80°
- D. 120°

(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° .

Math Item 7

$$M = 3N = \frac{P}{4} = Q + 5 = \frac{R}{7} > 0$$

Based on the statement above, which variable has the **greatest** value?

- A. M
- B. N
- C. P
- D. R

(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.

Math Item 8

A roofing contractor uses shingles at a rate of 3 bundles for every 96 square feet of roof covered. At this rate, how many bundles of shingles will he need in order to cover a roof that is 416 square feet?

- A. 5
- B. 12
- C. 13
- D. 14

(C) Set up a proportion:

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

$$96x = 1,248$$

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

Math Item 9

To make party invitations, Macie could buy a package of paper for \$10.50, or she could buy x individual sheets of the same paper for \$0.15 each. What is the largest value of x that would make buying the individual sheets **less** expensive than buying the package?

- A. 60
- B. 65
- C. 69
- D. 70

(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.

Math Item 10

At 1:00 p.m. one day, the temperature was 8 degrees above zero. During the rest of the day, the temperature fell 3 degrees per hour. What was the temperature at 7:00 p.m. that day?

- A. -13°
- B. -10°
- C. -7°
- D. 5°

(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.

Math Item 11

A bag contains 75 marbles that are red, blue, or green. The ratio of red to blue marbles is 15:7, and the ratio of blue to green marbles is 7:3. If 2 blue marbles are removed and replaced with 2 green marbles, what will be the new ratio of red to green marbles?

- A. 3:1
- B. 5:1
- C. 15:3
- D. 45:11

(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.

DESSERT CHOICES

Dessert	Number of Times Ordered
Cookies	42
Pie	23
Cake	47
Ice Cream	48

The table above shows the number of times that different desserts were ordered at a restaurant. Based on this information, what is the probability of a customer ordering ice cream as a dessert?

- A. 25%
- B. 30%
- C. 40%
- D. 48%

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

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

Math Item 13

A basket contains 3 apples, 4 oranges, 5 bananas, and 8 pears.

If one piece of fruit is randomly pulled from the basket, what is the probability that it will be a pear?

Select the place on the number line to plot the point.



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:

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

Math Item 14

A cooler contains three types of beverages: 5 bottles of apple juice, 3 bottles of grape juice, and 6 bottles of orange juice. What is the probability that a bottle chosen at random from this cooler is **not** apple juice?

- A. $\frac{1}{9}$
- B. $\frac{5}{14}$
- C. $\frac{9}{14}$
- D. $\frac{2}{3}$

(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 $\frac{9}{14}$.

Math Item 15

A large circular dinner plate has a radius of 20 centimeters. A smaller circular plate with a circumference of 20π centimeters is placed in the center of the larger dinner plate. What is the area of the part of the larger dinner plate that is **not** covered by the smaller plate?

- A. 20π sq cm
- B. 100π sq cm
- C. 200π sq cm
- D. 300π sq cm

(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 20π 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:

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

Which tables represent a proportional relationship between the number of books purchased and the total cost?

Select the **two** correct answers.

Number of Books Purchased	10	15	20	25
Total Cost (\$)	40	60	80	100

Number of Books Purchased	10	15	20	25
Total Cost (\$)	70	110	150	250

Number of Books Purchased	10	15	20	25
Total Cost (\$)	80	120	160	200

Number of Books Purchased	10	15	20	25
Total Cost (\$)	90	130	170	210

Number of Books Purchased	10	15	20	25
Total Cost (\$)	100	100	100	100

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.

Math Item 17

How many positive integers satisfy the inequality $x + 7 < 23$?

Enter your answer in the space.

(15) Solve the inequality for x .

$$x + 7 < 23$$

$$x < 16$$

There are 15 positive integers that are less than 16.

Math Item 18

If $\frac{36}{y} = 4x$, what is the value of x when $y = 3$?

- A. 3
- B. 4
- C. 9
- D. 12

(A) Substitute 3 for y and solve for x :

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

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

$$12 = 4x$$

$$3 = x$$

Math Item 19

Points X , Y , and Z are on a straight line, and Y is between X and Z . Length $\overline{YZ} = \frac{3}{5}\overline{XY}$, and length $\overline{XY} = 20$ centimeters. What is the length of \overline{XZ} ?

- A. 12 cm
- B. 24 cm
- C. 30 cm
- D. 32 cm

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

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

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

Math Item 20

Bryana bought $1\frac{3}{4}$ yards of cloth at \$8.00 per yard. If there was an 8% sales tax, what was the total cost of the cloth?

- A. \$12.96
- B. \$14.08
- C. \$15.12
- D. \$16.08

(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:

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



On the number line above, $MN = 5\frac{5}{6}$. What is the position of point M?

- A. $-7\frac{1}{6}$
- B. $-4\frac{1}{2}$
- C. $4\frac{1}{2}$
- D. $7\frac{1}{6}$

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

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

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

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

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

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

Math Item 22

A United States presidential coin is made from an alloy of four metals—copper, zinc, manganese, and nickel—with weights in the ratio of 177:12:7:4, respectively. The coin weighs a total of 8 grams. What is the weight of the zinc in this coin?

- A. 0.28 gram
- B. 0.48 gram
- C. 0.96 gram
- D. 48 grams

(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:

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

Math Item 23

Nicole's age now is three times Carmen's age. If Carmen will be 17 in 2 years, how old was Nicole 5 years ago?

- A. 38 yr
- B. 40 yr
- C. 45 yr
- D. 50 yr

(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.

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

$$N = 3C$$

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

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

Math Item 24

A chemical decays in such a way that the amount left at the end of each week is 20% less than the amount at the beginning of that same week. What percentage of the original amount is left after two weeks?

- A. 40%
- B. 60%
- C. 64%
- D. 80%

(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.

End of second week: $0.80(0.80x) = 0.64x$ or 64%

If $w - 1$ is an odd integer, which one of the following **must** be an even integer?

- A. $w + 1$
- B. $2w - 1$
- C. $2w - 2$
- D. $2w + 1$

(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.

Simplify this expression:

$$4(7 - 3x) - (5 - x)$$

- A. $23 - 4x$
- B. $23 - 11x$
- C. $28 - 4x$
- D. $28 - 12x$

(B)

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

PET SURVEY

Number of Pets	Number of Students
0	12
1	16
2	7
3 or more	5

Amy surveyed students at her school about the number of pets they have. What is the probability that a student who participated in the survey has at least 2 pets?

- A. $\frac{7}{40}$
- B. $\frac{1}{12}$
- C. $\frac{1}{8}$
- D. $\frac{3}{10}$

(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 $\frac{12}{40} = \frac{3}{10}$.

Math Item 28

A circle has a radius of 5 inches. What is the area of the circle in terms of π ?

Use π to express your answer.

Enter your answer in the space provided. Enter only your answer.

← → ↶ ↷ ✕ 🗑️

1	2	3	4	5			
6	7	8	9	0	+	-	$\sqrt{\quad}$
%	-	.	$\frac{\square}{\square}$	$\frac{\square\square}{\square}$	•	÷	$\sqrt[n]{\quad}$
	\square^\square	()	≤	<	=	>	≥
π							

Solution:

$$25\pi$$

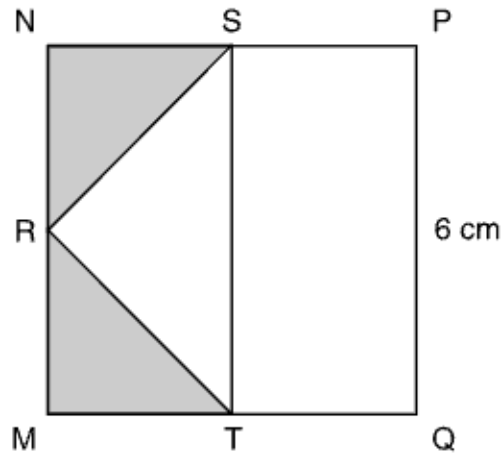
The area of a circle is its radius squared times π .

$$A = \pi r^2$$

$$r = 5$$

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

$$A = 25\pi$$



R , S , and T are midpoints of the sides of square $MNPQ$, as shown above. What is the sum of the areas of the shaded triangles?

- A. 9 sq cm
- B. 12 sq cm
- C. 18 sq cm
- D. 36 sq cm

(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.

Math Item 30

The Chens spend \$5 of every \$8 they earn on planned expenses. If the family earns \$29,600 in one year, how much will they spend on planned expenses that year?

- A. \$1,850
- B. \$3,700
- C. \$5,920
- D. \$18,500

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

$$\frac{x}{29,600} = \frac{5}{8}$$

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

Math Item 31

A pizza shop offers a choice of 3 sizes (small, medium, and large) and 7 different toppings. Different pizzas can be created by changing the size and the choice of toppings. If Cody wants to order a pizza with exactly 2 different toppings, how many different pizzas can he create?

- A. 6
- B. 21
- C. 63
- D. 126

(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: $3 \times 21 = 63$.

Math Item 32

At North High School, a survey asked two questions, Question A and Question B. For each question, students could answer either "yes" or "no." Of the 800 students who responded to the survey, 720 answered "yes" to Question A, and 640 answered "yes" to Question B. What is the **least** possible number of these students who could have answered "yes" to **both** questions?

- A. 80
- B. 160
- C. 560
- D. 640

(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 $640 - 80 = 560$.

Math Item 33

A wooden box has a square base. The height of this box is 3 times the length of one side of the base. If one side of the base is 3 feet long, what is the volume of this box?

- A. 9 cu ft
- B. 27 cu ft
- C. 36 cu ft
- D. 81 cu ft

(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.

Math Item 34

On a bike trip, Rajiv traveled 65 kilometers in 5 hours, while Shaina traveled 72 kilometers in 4 hours. How much **less** was Rajiv's mean speed, in kilometers per hour (kph), than Shaina's?

- A. 1
- B. 5
- C. 7
- D. 9

(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:

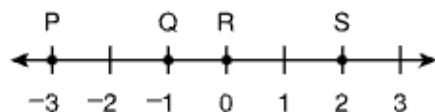
$$S - R = 18 - 3 = 5 \text{ kph}$$

Math Item 35

Points P, Q, R, and S represent -3 , -1 , 0 , and 2 , respectively, on a number line. How many units is the midpoint of \overline{PQ} from the midpoint of \overline{RS} ?

- A. 1
- B. 2
- C. 3
- D. 4

(C)



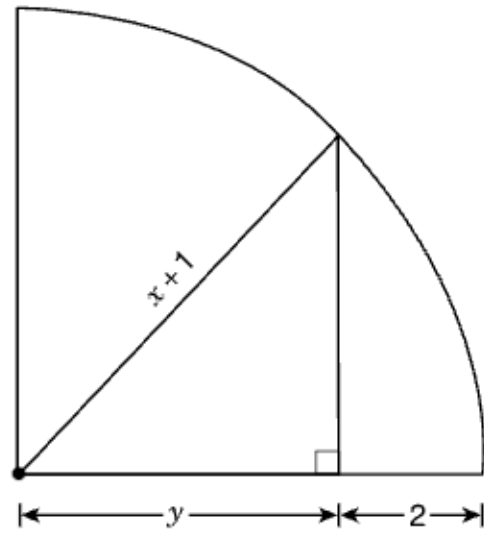
Find the midpoint of PQ and RS:

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

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.



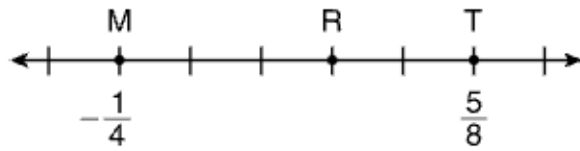
In the quarter circle above, what is y in terms of x ?

- A. $x - 1$
- B. $x + 1$
- C. $\frac{x+1}{2}$
- D. $\sqrt{\frac{(x+1)^2}{2}}$

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

$$y + 2 = x + 1$$

$$y = x - 1$$



The hash marks on the number line above are evenly spaced. What is the coordinate of point R?

- A. $\frac{7}{40}$
- B. $\frac{9}{40}$
- C. $\frac{11}{40}$
- D. $\frac{21}{40}$

(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:

$$\left(\frac{5}{8} - \left(-\frac{1}{4}\right)\right) \div \frac{5}{1} =$$

$$\left(\frac{5}{8} + \frac{2}{8}\right) \div \frac{5}{1} =$$

$$\frac{7}{8} \div \frac{5}{1} = \frac{7}{8} \times \frac{1}{5} = \frac{7}{40}$$

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 $\frac{11}{40}$.

Math Item 38

Phan chose an Internet service that charges \$18.00 per month plus \$0.024 per minute. Deion chose an Internet service that charges \$30.00 per month for unlimited usage. At the end of the month, Phan's and Deion's charges were identical. For how many minutes did Phan use the Internet service that month?

- A. 50
- B. 60
- C. 100
- D. 500

(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.

Math Item 39

In a sample of 50 cars at a local dealership, there are 12 red cars and 10 cars with backup cameras. Of the 12 red cars, 4 have backup cameras. If a car is selected at random from the given sample, what is the probability that **both** of the following are true: the car is **not** red and does **not** have a backup camera?

- A. $\frac{3}{5}$
- B. $\frac{16}{25}$
- C. $\frac{19}{25}$
- D. $\frac{4}{5}$

(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	6 (10 - 4)	10
No Backup Camera		32 (38 - 6)	
TOTAL	12	38 (50 - 12)	50

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

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

What is the value of x in the equation shown above?

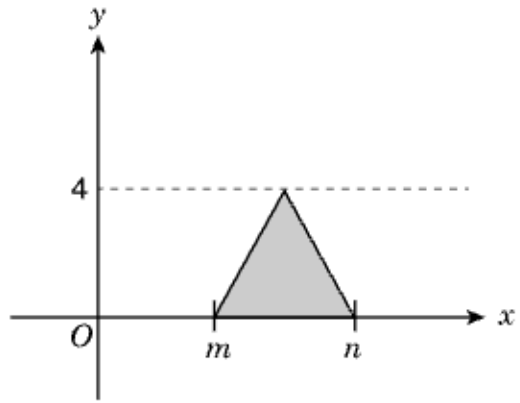
Enter your answer in the space.

(3)

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

$$147 - x = 144$$

$$x = 3$$



What is the area of the shaded triangle shown above?

- A. $m + n$
- B. $n - m$
- C. $2(n - m)$
- D. $4(n - m)$

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

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

ANIMAL CARDS

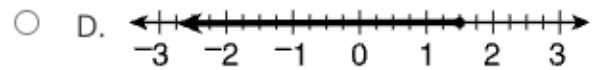
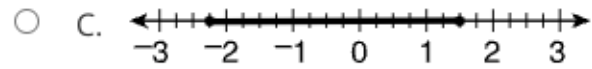
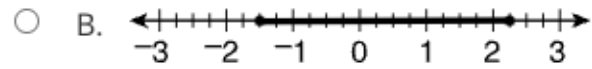
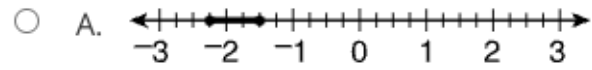
Number of Cards	Picture on Card
8	Cat
6	Dog
5	Bird
4	Fish
1	Horse

The cards in the table above are mixed in a box. Which animal pictured on a card has exactly a 1 in 4 chance of being picked at random from the box?

- A. cat
- B. dog
- C. fish
- D. horse

(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.

Which number line below shows the solution set for $2x - 2 \leq y \leq 4x + 10$ when $y = 1$?



(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 $1\frac{1}{2}$.

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

In the equation above, what is the value of p ?

- A. $\frac{2}{3}$
- B. 3
- C. $\frac{14}{3}$
- D. 14

(C)

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

$$21p = 7(14)$$

$$21p = 98$$

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

Math Item 45

A ball is selected at random from a box that contains 7 black balls, 14 green balls, and 21 red balls. What is the probability that the ball selected is black?

A. $\frac{1}{6}$

B. $\frac{1}{5}$

C. $\frac{1}{3}$

D. $\frac{5}{6}$







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

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

Amiya subscribes to an online streaming service. She pays a onetime setup fee of \$50, plus \$20 per month for service.

Write an equation that can be used to determine the total amount Amiya will pay, y , for x months of service.

Enter your equation in the space provided. Enter only the equation.

							
1	2	3	4	5	x	y	
6	7	8	9	0	+	-	$\sqrt{\quad}$
%	-	.	$\frac{\square}{\square}$	$\frac{\square\square}{\square}$	\cdot	\div	$\sqrt[n]{\quad}$
	\square^\square	()	\leq	$<$	$=$	$>$	\geq
π							

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 $y = 20x + 50$.

Math Item 47

Raoul is at least 3 years older than Vahn. Which of the following inequalities gives the relationship between Raoul's age (r) and Vahn's age (v)?

- A. $r - v \geq 3$
- B. $r - v \leq 3$
- C. $3 - v \leq r$
- D. $3 - r \leq v$

(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:

$$r - v \geq 3.$$

Math Item 48

There are now x cans stacked on a shelf that holds 36 cans when full. If 4 of these cans were removed, the shelf would be half full. What is the value of x ?

- A. 14
- B. 16
- C. 18
- D. 22

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

$$x - 4 = 18$$

$$x = 22$$

Math Item 49

Carlos tossed a paper cup in the air 50 times and found that the probability of it landing on its side was 72%. If he tosses the cup in the air 150 **more** times, what is the total number of times he can expect the cup to land on its side?

- A. 72
- B. 108
- C. 144
- D. 158

(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:

$$0.72 \times 200 = 144$$

Let $b = 3$, $c = 4$, and $d = 5$. Determine the value of $\frac{\frac{c}{d}}{\frac{c}{b}} + \frac{c}{d}$.

Enter your fractional answer in the space provided. Enter only your fraction.

$\frac{\square}{\square}$				
1	2	3	4	5
6	7	8	9	0
%	-	.		

Solution:

$$\frac{7}{5}$$

Substitute $b = 3$, $c = 4$, and $d = 5$ in $\frac{\frac{c}{d}}{\frac{c}{b}} + \frac{c}{d}$: $\frac{\frac{4}{5}}{\frac{4}{3}} + \frac{4}{5}$.

Then simplify the complex fraction by multiplying the complex fraction by a form of 1, $\left(\frac{\frac{3}{4}}{\frac{3}{4}}\right)$: $\frac{\frac{4}{5}}{\frac{4}{3}} + \frac{4}{5} = \frac{\frac{4}{5}}{\frac{4}{3}} \left(\frac{\frac{3}{4}}{\frac{3}{4}}\right) + \frac{4}{5}$.

Simplify after multiplying by a form of 1: $\frac{\left(\frac{4}{5}\right)\left(\frac{3}{4}\right)}{\left(\frac{4}{3}\right)\left(\frac{3}{4}\right)} + \frac{4}{5} = \frac{\frac{3}{5}}{1} + \frac{4}{5}$.

Then simplify again and add the two fractions: $\frac{\frac{3}{5}}{1} + \frac{4}{5} = \frac{3}{5} + \frac{4}{5} = \frac{7}{5}$.