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.

Passage 1

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.

Passage Set 1 Item 1

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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.

Passage Set 1 Item 2

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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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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.

Passage Set 1 Item 4

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

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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 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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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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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.

There are no more questions for this passage set.

Use the review button Review 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

A Miracle Mile

3 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.

3 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 startingpistol 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.

Passage Set 2 Item 1

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

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.

Passage Set 2 Item 2

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.

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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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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)

Passage Set 2 Item 4

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.

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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)

Passage Set 2 Item 5

A Miracle Mile

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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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How did interval training affect Bannister's performance?

- A. It helped him learn how to moderate his pace while running.
- B. It helped him conserve effort when running with teammates.
- C. It helped him improve his pace and stamina while running.
- D. It helped him decrease his recovery time after an intense run.

There are no more questions for this passage set.

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

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Passage

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 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.

9 "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."

36 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?"

10 "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!

25 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."

25 "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

Passage Set 3 Item 1

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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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.

Passage Set 3 Item 3

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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 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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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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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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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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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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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

There are no more questions for this passage set.

Use the review button Review 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

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.

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,
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.

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
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)
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;
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
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
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.

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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,
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.

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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.

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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.

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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.

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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.

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

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the coffee your teacher drank this morning,
your little sister, and the stuffed dog
she used to carry around with her everywhere.
And everywhere.

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.

There are no more questions for this passage set.

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

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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.

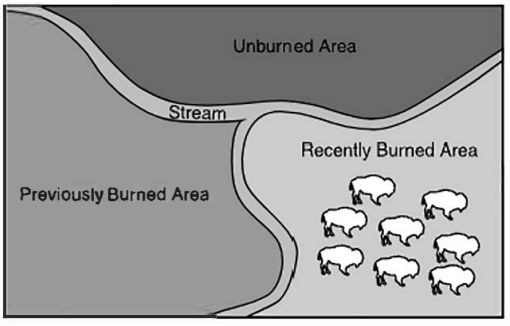
4 One common target of controlled burns at the preserve and the surrounding area is the invasive red cedar tree. A single red cedar tree can consume up to 40 gallons of water per day, taking this vital resource away from other plant life. These tall trees also cast shade that prevents sunlight from reaching 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.

OVERVIEW OF THE PATCH-BURN METHOD

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.



The unburned area is overrun with weeds and has the greatest risk of catching fire.

The previously burned area is cleared of weeds, and young trees and crops grow freely and thrive.

The recently burned area has been cleared of all plants. Bison prefer to eat the fresh grass that will begin to grow in the recently burned area, and they will generally remain in that area until newer, fresher grass is available elsewhere.

Passage Set 5 Item 1

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

Passage Set 5 Item 2

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

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.

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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.

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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)

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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.

> **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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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.

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

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

There are no more questions for this passage set.

Use the review button Review 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.
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
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,
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,
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
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

Passage Set 6 Item 1

Letter from Brooklyn

by Jacob Scheier

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But when it starts darkening at 4,
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like someone drawing your attention
to their lack of intimacy

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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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)

Passage Set 6 Item 3

Letter from Brooklyn

by Jacob Scheier

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to their lack of intimacy

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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this closeness, I know, will be a felt distance,
like someone drawing your attention
to their lack of intimacy

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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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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to their lack of intimacy

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 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.

There are no more questions for this passage set.

Use the review button Review 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.

Passage 7

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.

Passage Set 7 Item 2

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 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 End of an Era

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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

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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

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

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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.

There are no more questions for this passage set.

Use the review button Review 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.

ELA Standalone Item 1

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.

ELA Standalone Item 2

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.

ELA Standalone Item 3

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

ELA Standalone Item 4

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***.

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

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.

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.

- [ ] $\frac{18}{150} = \frac{x}{250}$
- [ ] $\frac{18}{250} = \frac{x}{150}$
- [ ] $\frac{150}{18} = \frac{250}{x}$
- [ ] $\frac{x}{18} = \frac{250}{150}$
- [ ] $\frac{x}{150} = \frac{18}{250}$

Math Item 4

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

1 mink $= 3$ zogs
1 mink $= \frac{1}{4}$ 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?

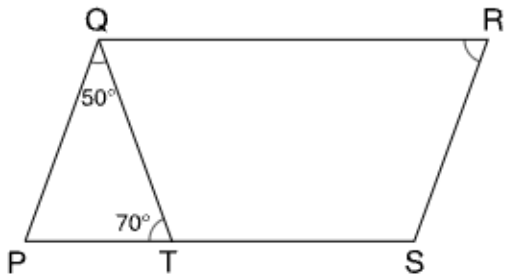
Enter your answer in the space.

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.

Math Item 6



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

A. 60°

B. 70°

C. 80°

D. 120°

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

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

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

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°

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

Math Item 12

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%

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.

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. $\frac{2}{3}$

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

Math Item 16

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

Math Item 17

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

Enter your answer in the space.

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

Math Item 19

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

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

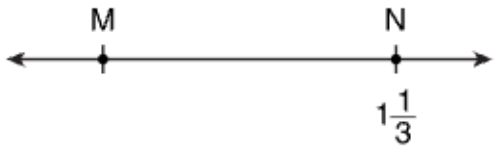
A. $12.96

B. $14.08

C. $15.12

D. $16.08

Math Item 21



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

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

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

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

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%

Math Item 25

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. $2w + 1$

Math Item 26

Simplify this expression:

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

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

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?

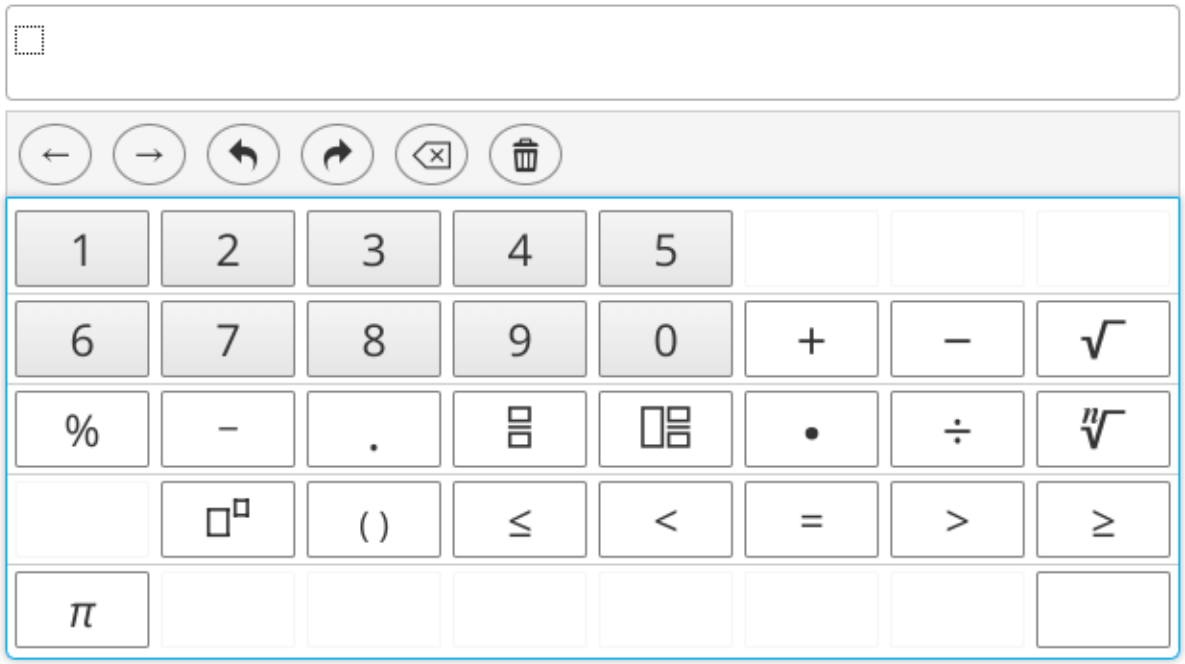
- A. $\frac{7}{40}$
- B. $\frac{1}{12}$
- C. $\frac{1}{8}$
- D. $\frac{3}{10}$

Math Item 28

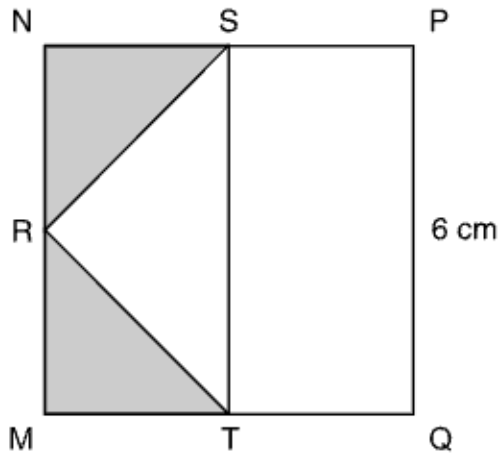
A circle has a radius of 5 inches. What is the area of the circle in terms of π?

Use π to express your answer.

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



Math Item 29



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

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

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

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

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

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?

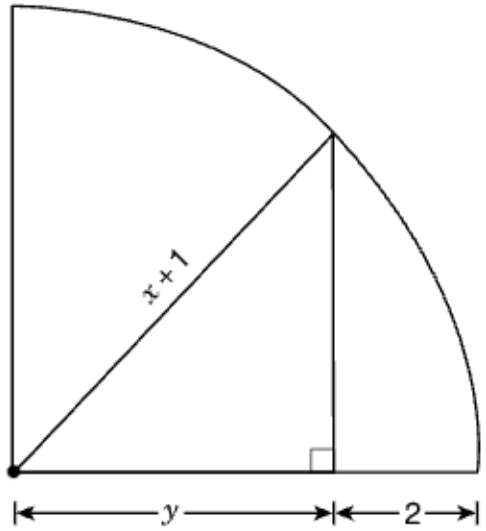
- A. 1
- B. 5
- C. 7
- D. 9

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

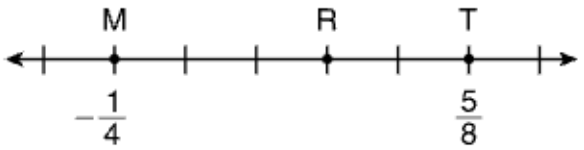
Math Item 36



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

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

Math Item 37



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. $\frac{21}{40}$

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

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. $\frac{4}{5}$

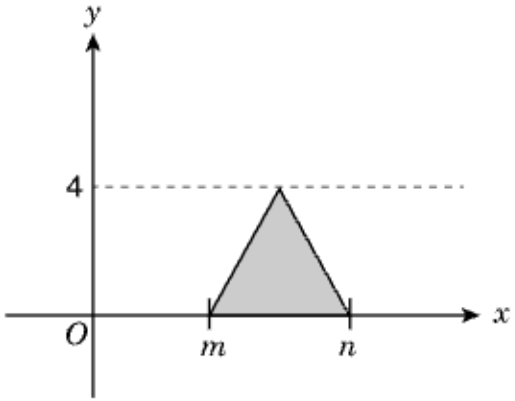
Math Item 40

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

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

Enter your answer in the space.

Math Item 41



What is the area of the shaded triangle shown above?

A. $m + n$

B. $n - m$

C. $2(n - m)$

D. $4(n - m)$

Math Item 42

ANIMAL CARDS

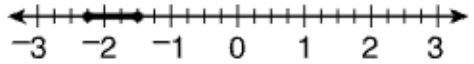
Number of Cards	Picture on Card
8	Cat
6	Dog
5	Bird
4	Fish
1	Horse

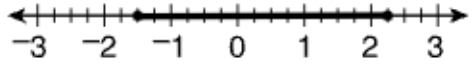
The cards in the table above are mixed in a box. Which animal pictured on a card has exactly a 1 in 4 chance of being picked at random from the box?

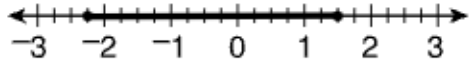
- A. cat
- B. dog
- C. fish
- D. horse

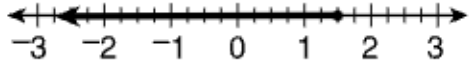
Math Item 43

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

A. 

B. 

C. 

D. 

Math Item 44

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

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

A. $\frac{2}{3}$

B. 3

C. $\frac{14}{3}$

D. 14

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?

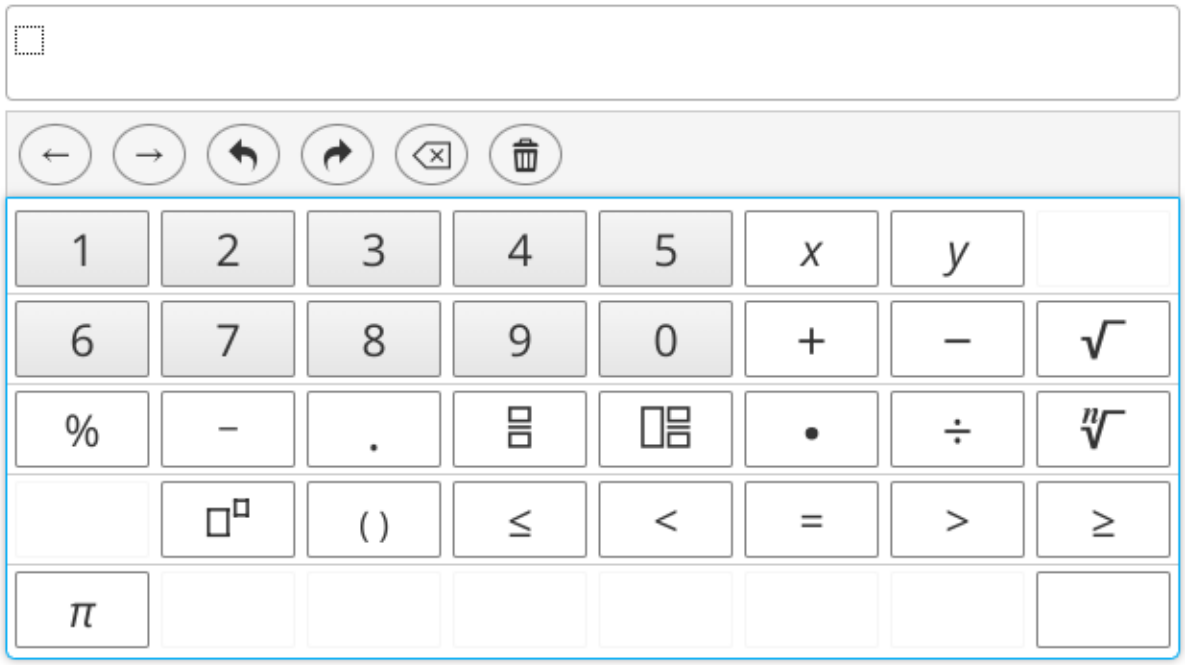
- A. $\frac{1}{6}$
- B. $\frac{1}{5}$
- C. $\frac{1}{3}$
- D. $\frac{5}{6}$

Math Item 46

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.



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. $3 - r \leq v$

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

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

Math Item 50

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

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