

Form C 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

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**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

*Samuel Morse, an American inventor, is credited with creating the electronic telegraph, a communication device that allows users to send messages using a system of short and long pulses that represent letters, numbers, and punctuation. In 1844, the United States Congress passed the Telegraph Bill, which provided Morse with the funds to build an electric telegraph system.*

# Invention of the Telegraph

## Earlier Signal Systems

- 1 Long before Samuel F. B. Morse electrically transmitted his famous message “What hath God wrought?” from Washington to Baltimore on May 24, 1844, there were signaling systems that enabled people to communicate over distances. Most were visual or “semaphore” systems using flags or lights. In the eighteenth century, such systems used an observer who would decipher a signal from a high tower on a distant hill and then send it on to the next station. The young American republic wanted just such a system along its entire Atlantic coast and offered a prize of \$30,000 for a workable proposal. The framers of this legislation<sup>1</sup> had no way of knowing that when they used the word “telegraph” to refer to this visual semaphore system, they would be offered an entirely new and revolutionary means of communication—electricity.

## The Growth of an Idea

- 2 The idea of using electricity to communicate over distance is said to have occurred to Morse during a conversation aboard ship when he was returning from Europe in 1832. Michael Faraday’s recently invented electromagnet was much discussed by the ship’s passengers, and when Morse came to understand how it worked, he speculated that it might be possible to send a coded message over a wire. While a student at Yale College years before, he had written his parents a letter about how interesting he found the lectures on electricity. Despite what he had learned at Yale, Morse found when he began to develop his idea that he had little real understanding of the nature of electricity, and after sporadic attempts to work with batteries, magnets, and wires, he finally turned for help to a colleague at the University of the City of New York, Leonard D. Gale.
- 3 Gale was a professor of chemistry and familiar with the electrical work of Princeton’s Joseph Henry, a true pioneer in the new field. Well before Morse had his shipboard idea about a telegraph, Henry rang a bell at a distance by opening and closing an electric circuit. In 1831, he had published an article, of which Morse was unaware, that contained details suggesting the idea of an electric telegraph. Gale’s help and his knowledge of this article proved crucial to Morse’s telegraph system because Gale not only pointed out flaws in the system but showed Morse how he could regularly boost the strength of a signal and overcome the distance problems he had encountered by using a relay system Henry had invented. Henry’s experiments, Gale’s assistance, and, soon after, hiring the young technician Alfred Vail were keys to Morse’s success.

## Obstacles and Opportunities

- 4 By December 1837, Morse had enough confidence in his new system to apply for the federal government’s appropriation, and during the next year he conducted demonstrations of his telegraph both in New York and Washington.

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<sup>1</sup>legislation: Telegraph Bill

- 5 However, when the economic disaster known as the Panic of 1837 took hold of the nation and caused a long depression, Morse was forced to wait for better times. It was during this period that Morse visited Europe again and tried not only to secure patent protection overseas but to examine competing telegraph systems in England. . . .
- 6 By 1843, the country was beginning to recover economically, and Morse again asked Congress for the \$30,000 that would allow him to build a telegraph line from Washington to Baltimore, forty miles away. The House of Representatives eventually passed the bill containing the Morse appropriation, and the Senate approved it in the final hours of that Congress's last session. With President Tyler's signature, Morse received the cash he needed and began to carry out plans for an underground telegraph line.

### **Realizing a Great Invention**

- 7 Morse had hired the ingenious construction engineer Ezra Cornell to lay the pipe carrying the wire, and although Cornell did his job superbly, one of Morse's partners, Congressman F. O. J. Smith, had purchased wire with defective insulation. Too much time had been wasted laying bad wire, and with the project on a rigid deadline, something had to be done quickly. Cornell suggested that the fastest and cheapest way of connecting Washington and Baltimore was to string wires overhead on trees and poles. The desperate Morse gave the go-ahead, and the line was completed in time for the dramatic and spectacularly successful link between the Supreme Court chamber of the Capitol building and the railroad station in Baltimore.
- 8 Soon, as overhead wires connected cities up and down the Atlantic coast, the dots-and-dashes method<sup>2</sup> that recorded messages on a long moving strip of paper was replaced by the operator's ability to interpret the code in real time. . . . Telegraph lines soon extended westward, and within Morse's own lifetime they connected the continents of Europe and America.

"Invention of the Telegraph"—Public Domain/Library of Congress

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<sup>2</sup>**dots-and-dashes method:** short and long pulses of Morse code

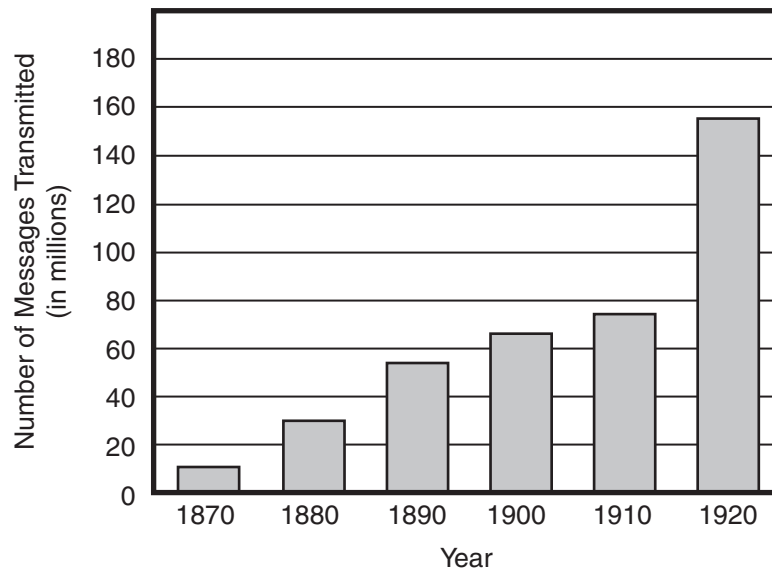
### BRITISH ALL-RED TELEGRAPH LINE, 1902



KEY	
	= Electric telegraph line

The first transatlantic electric telegraph message was sent in 1858, and by 1902 the British All-Red Line connected most of the world.

### TELEGRAPH MESSAGES TRANSMITTED, 1870–1920



Source: U.S. Bureau of the Census. *Historical Statistics of the United States, Colonial Times to 1970, Bicentennial Edition, Part 2*. Washington, D.C., 1975.

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**1** Long before Samuel F. B. Morse electrically transmitted his famous message “What hath God wrought?” from Washington to Baltimore on May 24, 1844, there were signaling systems that enabled people to communicate over distances. Most were visual or “semaphore” systems using flags or lights. In the eighteenth century, such systems used an observer who would decipher a signal from a high tower on a distant

The details of the section “The Growth of an Idea” convey a central idea of the passage by suggesting that

- A. the collaborative efforts of colleagues resulted in successful communication over a wire.
- B. a great deal of interest and work was devoted to understanding how to use electricity to send signals.
- C. Faraday’s invention of the electromagnet inspired the invention of the telegraph.
- D. colleges like Yale played a great role in making new discoveries about electricity and its applications.

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The question asks how the details of the section “The Growth of an Idea” help convey a central idea of the passage.

- A. Incorrect. Although paragraph 2 in this section states that Morse “speculated that it might be possible to send a coded message over a wire,” this section does not describe Morse and his colleagues’ ultimate success at sending such a message.
- B. **CORRECT.** The section helps convey a central idea because it mainly focuses on what inspired Morse to begin his work and explains how others were just as interested in working to achieve this goal. Paragraph 3 states that “Henry’s experiments, Gale’s assistance, and, soon after, hiring the young technician Alfred Vail were keys to Morse’s success.” Their shared interest in the possibilities of electricity inspired them to work together to find a way to use electricity to send long-distance messages.
- C. Incorrect. Paragraph 2 of the section explains how Morse came to understand how Faraday’s electromagnet worked and states that this invention prompted Morse to wonder whether it might be possible to send a coded message over a wire. However, that early idea of Morse’s only evolved into the telegraph after much more research and experimentation.
- D. Incorrect. Although paragraph 2 establishes that Morse was interested in lectures at Yale on electricity, the influence of what Morse learned at Yale was only a minor factor in his development of the telegraph.

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Which sentence is the **best** summary of how Morse obtained the funding necessary to build his telegraph system?

- A. Morse’s application for a federal grant was delayed until 1843, so he spent time traveling in Europe, where he concentrated on obtaining a patent for his system.
- B. Morse applied for a government grant that required both houses of Congress and the president to pass a bill awarding him \$30,000 for his telegraph project.
- C. Morse applied for a government appropriation and conducted telegraph demonstrations to show that his system could work, and after a delay caused by a financial depression, Congress approved the \$30,000 appropriation in 1843.
- D. Working with Gale and Vail allowed Morse to find flaws in Henry’s work and to develop his own ideas before applying for the federal government appropriation.

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The question asks for the **best** summary of how Morse obtained the funding necessary to build his telegraph system.

- A. Incorrect. This summary focuses mostly on what Morse did while his application for funding was delayed in the United States rather than on how Morse acquired the patent, because during this period, Morse tried “not only to secure patent protection overseas but to examine competing telegraph systems in England” (paragraph 5). Therefore, it is not the best summary of how Morse obtained the funding necessary to build his telegraph system.
- B. Incorrect. Although this summary mentions how Morse applied for the “federal government’s appropriation” (paragraph 4), it primarily focuses on the actions of the House of Representatives and the Senate, not on Morse’s efforts to obtain funding. Therefore, it is not the best summary of how Morse obtained the funding necessary to build his telegraph system.
- C. **CORRECT.** This summary best describes how Morse obtained the funding that he needed for his telegraph system, because it explains that Morse applied “for the federal government’s appropriation, and during the next year he conducted demonstrations of his telegraph” (paragraph 4). In paragraph 5, the author explains the impact that the Panic of 1837 had on Morse’s request. In paragraph 6, the author describes how by 1843, economic times had improved, so Morse again “asked Congress for the \$30,000” and was awarded the funds after “the Senate approved it.”
- D. Incorrect. This summary is not the best summary of how Morse obtained the funding necessary to build his telegraph system, because it relates how Morse worked with others to develop his ideas about the telegraph and how Gale and Vail were the “keys to Morse’s success” (paragraph 3) before he applied for funding.

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Read this sentence from paragraph 7.

**The desperate Morse gave the go-ahead, and the line was completed in time for the dramatic and spectacularly successful link between the Supreme Court chamber of the Capitol building and the railroad station in Baltimore.**

The words “dramatic” and “spectacularly” in the sentence convey a

- A. sense of relief and fulfillment that the line was finished.
- B. sense of wonder and celebration that the telegraph line was accomplished.
- C. feeling of excitement about the future possibilities of the telegraph.
- D. feeling of confidence about being able to continue the work.

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The question asks what the words “dramatic” and “spectacularly” convey in the sentence from paragraph 7.

- A. Incorrect. While there may have been some feelings of relief and fulfillment when the lines were finished, the passage instead focuses on the wonder and joy that Morse and Cornell felt after overcoming setbacks and completing the construction of the telegraph system.
- B. **CORRECT.** Morse and Cornell rushed to post the wires overhead, and the “rigid deadline” (paragraph 7) was successfully met. The words have a positive and victorious tone that is consistent with the feeling of wonder that it worked and of celebration that the construction was completed.
- C. Incorrect. The passage does not share whether Morse or Cornell considered the future possibilities of the telegraph; it shares only that the finished product was “dramatic,” implying it was amazing to see.
- D. Incorrect. While the passage later discusses the expansion of overhead wires “up and down the Atlantic coast” and how they “connected the continents of Europe and America” (paragraph 8), there is no evidence shared in the passage that Morse planned to continue his work with electricity.

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How does the graph support the ideas in paragraph 8?

- A. It indicates how welcome the improvement of long-distance communication was in the United States.
- B. It provides evidence of the dramatic increase in the number of telegraph messages as Morse’s system expanded across the United States.
- C. It reveals that by the twentieth century millions of people had used the telegraph despite earlier hesitations about the system.
- D. It shows how improvements that allowed Morse code to be read in real time made relaying telegraph messages faster and increased the system’s usage.

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The question asks how the graph supports the ideas in paragraph 8.

- A. Incorrect. While it can be inferred from the expansion shown on the graph that people possibly welcomed the improvement in long-distance communication, the graph does not state this explicitly.
- B. **CORRECT.** The graph shows the number of messages transmitted from 1870 to 1920. In 1920 almost 160 million messages were transmitted, showing a “dramatic”—almost double—increase from 1910.
- C. Incorrect. The graph does not show how many people used the telegraph, but rather it shows the number of messages sent. Additionally, paragraph 8 provides no details about hesitation on the part of individual people.
- D. Incorrect. While improvements in recording and interpreting code were made, the graph does not show the effect of this advancement on the speed or number of messages being transmitted.

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The idea that, in the mid-nineteenth century, the United States was mostly unaware of the possibilities of electricity is illustrated in the passage **mainly** through the

- A. description of the government’s initial desire to expand a semaphore signaling system that used either flags or lights along the Atlantic Coast.
- B. delay by the House of Representatives to pass the bill funding Morse’s telegraph line six years after he first applied for the appropriation.
- C. discussions of the newly invented electromagnet that sparked the idea of sending codes through wires.
- D. description of how an electric circuit could be closed to ring a bell at a distance.

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The question asks how the passage **mainly** illustrates the idea that the United States was mostly unaware of the possibilities of electricity in the mid-nineteenth century.

- A. **CORRECT.** Paragraph 1 states that most signaling systems at the time were “visual or ‘semaphore’ systems using flags or lights” and that the United States government was looking for “just such a system along its entire Atlantic coast.” This option is correct because it shows that the government wanted to continue to use a limited system instead of finding ways to improve the system. Had the government been aware of the possibilities of electricity, a more sophisticated system might have been imagined.
- B. Incorrect. The delay in funding had to do with the Panic of 1837 and the “long depression” (paragraph 5) and was not because the House of Representatives was not aware of or ready for innovation in the use of electricity.
- C. Incorrect. The information in this option focuses on what prompted Morse to consider an electric wire-based communications system. While this option suggests that electrical devices were just beginning to be invented, it does not support the idea that the nation was unaware of the possibilities of electricity.
- D. Incorrect. While this option describes an early electrical innovation that may seem quite basic and limited to modern audiences, paragraph 3 states that this innovation was the work of a “pioneer in the new field,” implying that it was quite significant for its time. This option is incorrect because it focuses on those people in the United States who were aware of the possibilities of electricity.

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

- A. Morse’s telegraph was successful because the wires were strung aboveground rather than underground as originally planned.
- B. Understanding the importance of Morse’s telegraph requires detailed knowledge of electrical systems.
- C. The implementation of Morse’s telegraph system was overly influenced by economic factors.
- D. Morse’s invention of the telegraph made a great stride toward better connecting people across the United States and across the world.

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The question asks which statement **most likely** represents a viewpoint held by the author of the passage.

- A. Incorrect. The author explains that the aboveground wiring was used only because “Cornell suggested that [it was] the fastest and cheapest way” (paragraph 7), not because it would be more successful.
- B. Incorrect. The author conveys the importance of this advancement in communication without providing detailed information about electrical systems.
- C. Incorrect. While the Panic of 1837 caused a delay in Morse’s funding, the author shows that Morse received the appropriation in 1843 and was able to overcome the financial setback he faced.
- D. **CORRECT.** Paragraph 8 states that “telegraph lines soon extended westward, and within Morse’s own lifetime they connected the continents of Europe and America.” Therefore, this option is correct because the author presents Morse’s telegraph as a great leap in the ability to quickly communicate messages over distances never before imagined.

**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.

## Excerpt from “Niagara Falls”

by Rupert Brooke

- 1 The real secret of the beauty and terror of the Falls is not their height or width, but the feeling of colossal power and of unintelligible disaster caused by the plunge of that vast body of water. If that were taken away, there would be little visible change, but the heart would be gone.
- 2 The American Falls do not inspire this feeling in the same way as the Canadian. It is because they are less in volume, and because the water does not fall so much into one place. By comparison their beauty is almost delicate and fragile. They are extraordinarily level, one long curtain of lacework and woven foam. Seen from opposite, when the sun is on them, they are blindingly white, and the clouds of spray show dark against them. With both Falls the colour of the water is the ever-altering wonder. Greens and blues, purples and whites, melt into one another, fade, and come again, and change with the changing sun. Sometimes they are as richly diaphanous<sup>1</sup> as a precious stone, and glow from within with a deep, inexplicable light. Sometimes the white intricacies of dropping foam become opaque and creamy. And always there are the rainbows. If you come suddenly upon the Falls from above, a great double rainbow, very vivid, spanning the extent of spray from top to bottom, is the first thing you see. If you wander along the cliff opposite, a bow springs into being in the American Falls, accompanies you courteously on your walk, dwindles and dies as the mist ends, and awakens again as you reach the Canadian tumult. And the bold traveller who attempts the trip under the American Falls sees, when he dare open his eyes to anything, tiny baby rainbows, some four or five yards in span, leaping from rock to rock among the foam, and gambolling beside him, barely out of hand's reach, as he goes. One I saw in that place was a complete circle, such as I have never seen before, and so near that I could put my foot on it. It is a terrifying journey, beneath and behind the Falls. The senses are battered and bewildered by the thunder of the water and the assault of wind and spray; or rather, the sound is not of falling water, but merely of falling; a noise of unspecified ruin. So, if you are close behind the endless clamour, the sight cannot recognise liquid in the masses that hurl past. You are dimly and pitifully aware that sheets of light and darkness are falling in great curves in front of you. Dull omnipresent foam washes the face. Farther away, in the roar and hissing, clouds of spray seem literally to slide down some invisible plane of air.
- 3 Beyond the foot of the Falls the river is like a slipping floor of marble, green with veins of dirty white, made by the scum that was foam. It slides very quietly and slowly down for a mile or two, sullenly exhausted. Then it turns to a dull sage green, and hurries more swiftly, smooth and ominous. As the walls of the ravine close in, trouble stirs, and the waters boil and eddy. These are the lower rapids, a sight more terrifying than the Falls, because less intelligible. Close in its bands of rock the river surges tumultuously forward, writhing and leaping as if inspired by a demon. It is pressed by the straits into a visibly convex form. Great planes of water slide past. Sometimes it is thrown up into a pinnacle of foam higher than a house, or leaps with incredible speed from the crest of one vast wave to another, along the shining curve between, like the spring of a wild beast. Its motion continually suggests muscular action. The power manifest in these rapids moves one with a different sense of awe and terror from that of the Falls. Here the inhuman life and strength are spontaneous, active, almost resolute. . . . A place of fear.

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<sup>1</sup>**diaphanous:** sheer, translucent

4 One is drawn back, strangely, to a contemplation of the Falls, at every hour, and especially by night, when the cloud of spray becomes an immense visible ghost, straining and wavering high above the river, white and pathetic and translucent. The Victorian lies very close below the surface in every man. There one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara. I could not get out of my mind the thought of a friend, who said that the rainbows over the Falls were like the arts and beauty and goodness, with regard to the stream of life—caused by it, thrown upon its spray, but unable to stay or direct or affect it, and ceasing when it ceased. In all comparisons that rise in the heart, the river, with its multitudinous waves and its single current, likens itself to a life, whether of an individual or of a community. A man's life is of many flashing moments, and yet one stream; a nation's flows through all its citizens, and yet is more than they. In such places, one is aware, with an almost insupportable and yet comforting certitude, that both men and nations are hurried onwards to their ruin or ending as inevitably as this dark flood. Some go down to it unreluctant, and meet it, like the river, not without nobility. And as incessant, as inevitable, and as unavailing as the spray that hangs over the Falls, is the white cloud of human crying. . . . With some such thoughts does the platitudinous<sup>2</sup> heart win from the confusion and thunder of a Niagara peace that the quietest plains or most stable hills can never give.

From LETTERS FROM AMERICA by Rupert Brooke—Public Domain

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<sup>2</sup>**platitudinous:** clichéd, common

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**2** The American Falls do not inspire this feeling in the same way as the Canadian. It is because they are less in volume, and because the water does not fall so much into one place. By comparison their beauty is almost delicate and fragile. They are extraordinarily level, one long curtain of lacework and woven foam. Seen from opposite, when the sun is on them, they are blindingly white, and the clouds of spray show dark against them. With both Falls the colour of the water is the ever-altering wonder. Greens and blues, purples and whites,

Read this sentence from paragraph 2.

**They are extraordinarily level, one long curtain of lacework and woven foam.**

What is the effect of comparing the American Falls to a “long curtain of lacework and woven foam”?

- A. It demonstrates the timelessness of the American Falls.
- B. It conveys the secretive nature of the American Falls.
- C. It illustrates the elegant uniformity of the American Falls.
- D. It communicates the intense strength of the American Falls.

Excerpt from “Niagara Falls”

by Rupert Brooke

**1** The real secret of the beauty and terror of the Falls is not their height or width, but the feeling of colossal power and of unintelligible disaster caused by the plunge of that vast body of water. If that were taken away, there would be little visible change, but the heart would be gone.

**2** The American Falls do not inspire this feeling in the same way as the Canadian. It is because they are less in volume, and because the water does not fall so much into one place. By comparison their beauty is almost delicate and fragile. They are extraordinarily level, one long curtain of lacework and woven foam. Seen from opposite, when the sun is on them, they are blindingly white, and the clouds of spray show dark against them. With both Falls the colour of the water is the ever-altering wonder. Greens and blues, purples and whites,

The question asks for the effect of the comparison being made in the sentence in paragraph 2.

- A. Incorrect. Neither “lacework and woven foam” (paragraph 2) nor the quality of being extremely level are related to timelessness.
- B. Incorrect. Although curtains are sometimes used to create privacy, the purpose of comparing the Falls to a “long curtain of lacework and woven foam” (paragraph 2) is not to convey the secretive nature of the Falls but rather to illustrate their beauty and uniformity.
- C. **CORRECT.** The word “lacework” in the sentence from paragraph 2 suggests an elegant piece of craftsmanship, and the “one long curtain” and “extraordinarily level” aspects of the Falls mean that the Falls are uniform or consistent.
- D. Incorrect. Although the author states in paragraph 1 that the Falls inspire a “feeling of colossal power,” in paragraph 2 the author describes the American Falls as “delicate and fragile.” Therefore, the purpose of the comparison in paragraph 2 is not to communicate the intense strength of the Falls.

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Read this sentence from paragraph 3.

**These are the lower rapids, a sight more terrifying than the Falls, because less intelligible.**

Which statement **best** describes how the sentence fits into the overall structure of the excerpt?

- A. It signals a change from the positive aspects of the Falls to the negative aspects.
- B. It indicates a progression from the literal description of the water to a discussion of timeless truths.
- C. It reinforces a shift from the qualities of the Falls to the qualities of the river.
- D. It introduces a contrast between the obvious and the hidden features of the rapids.

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The question asks for the statement that **best** describes how the sentence from paragraph 3 fits into the overall structure of the excerpt.

- A. Incorrect. Although in paragraph 2 the author describes the beauty of the Falls as both an "ever-altering wonder" and an "assault of wind and spray," in paragraph 3 the author does not signal a change from the positive aspects of the Falls to the negative aspects. Instead, the author provides a description of the river and the rapids below the Falls.
- B. Incorrect. While the author compares the water of the river to "a slipping floor of marble, green with veins of dirty white, made by the scum that was foam" in paragraph 3, the statement that the lower rapids are "more terrifying than the Falls, because less intelligible" does not indicate a progression from the literal description of the water to a discussion of timeless truths. Instead, the author is merely describing all aspects of the rapids, both literally and figuratively.
- C. **CORRECT.** The first sentence of paragraph 3 moves the description "beyond the foot of the Falls" to "the river" and then the paragraph begins to describe this location in further detail ("a dull sage green," "hurries more swiftly," "smooth and ominous," "waters boil and eddy") before reinforcing this shift by confirming it again with the words "These are the lower rapids, a sight more terrifying than the Falls."
- D. Incorrect. Although the author states that the waters of the rapids "boil and eddy" and suggests that the rapids are "less intelligible," these statements do not introduce a contrast between the obvious and the hidden features of the rapids. They merely describe a feature and the sight of the lower rapids.

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Which sentence from the excerpt **best** supports the idea that the essence of the Falls lies in their emotional impact?

- A. “If that were taken away, there would be little visible change, but the heart would be gone.” (paragraph 1)
- B. “By comparison their beauty is almost delicate and fragile.” (paragraph 2)
- C. “One is drawn back, strangely, to a contemplation of the Falls, at every hour, and especially by night, when the cloud of spray becomes an immense visible ghost, straining and wavering high above the river, white and pathetic and translucent.” (paragraph 4)
- D. “A man’s life is of many flashing moments, and yet one stream; a nation’s flows through all its citizens, and yet is more than they.” (paragraph 4)

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The question asks for the sentence from the excerpt that **best** supports the idea that the essence of the Falls lies in their emotional impact.

- A. **CORRECT.** The first sentence in the excerpt establishes that “the real secret of the beauty and terror of the Falls” lies in “the feeling of colossal power and of unintelligible disaster.” This option states that “if that [feeling] were taken away, . . . the heart would be gone,” meaning that the emotional impact of the Falls is essential.
- B. Incorrect. While “delicate” and “fragile” are words that can be connected with certain kinds of emotions, in the sentence in the option they are connected with physical beauty.
- C. Incorrect. While the sentence in the option describes the power of the Falls to engage one in thought, it does not best support the idea that the essence of the Falls lies in their emotional impact.
- D. Incorrect. The sentence in the option describes thoughts one may have while watching the Falls and is not focused on the Falls’ emotional impact.

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Read this sentence from paragraph 4.

**There one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara.**

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

- A. suggesting that viewing the Falls can be a life-changing experience.
- B. showing that the cliffs of the Falls are a good place for self-examination.
- C. emphasizing that the grandeur of the Falls seems impossible to grasp.
- D. highlighting the type of reflection that is inspired by a visit to the Falls.

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The question asks how the sentence from paragraph 4 contributes to the development of ideas in the excerpt.

- A. Incorrect. The sentence focuses on the idea that the Falls are a great place for contemplation but does not clarify that these thoughts are life-changing.
- B. Incorrect. The sentence does not describe focused thoughts of a personal nature; the grand, sweeping nature of the Falls inspires thoughts of the same caliber as "the passage of empires."
- C. Incorrect. The sentence is about how the Falls inspire great thoughts but is not about how difficult it is to grasp the grandeur of the Falls.
- D. **CORRECT.** The description of "cloudy thoughts of destiny and the passage of empires" in the sentence refers to the types of thoughts a person might have while observing the Falls.

Excerpt from “Niagara Falls”

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In paragraph 4, the idea that human life and history ultimately end in the same way is illustrated **mainly** through

- A. the discussion of how the rainbows visible in the Falls are like the art and beauty created by humankind.
- B. the comparison between the movement of water in the Falls and the human experience.
- C. the inclusion of details that show that every observer’s experience with the Falls is different.
- D. the acknowledgment that contemplating the Falls at night sparks an awareness of humankind’s destiny.

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The question asks how paragraph 4 of the excerpt **mainly** illustrates the idea that human life and history ultimately end in the same way.

- A. Incorrect. In paragraph 4, the author compares the rainbows visible in the Falls to “the arts and beauty,” which share the rainbows’ dependence on “the stream of life”—that is, they are “caused by it, thrown upon its spray, but unable to stay or direct or affect it, and ceasing when it ceased.” This comparison does not illustrate the idea that human life and history ultimately end in the same way but rather that art and beauty, like human beings, are unable to “stay or direct or affect” their ultimate fate.
- B. **CORRECT.** The author concludes in paragraph 4 that the movement of the Falls can be compared to people and history when he writes, “both men and nations are hurried onwards to their ruin or ending as inevitably as this dark flood.” This comparison illustrates the idea that human life and history ultimately end in the same way.
- C. Incorrect. Although in paragraph 4 the author states that “One is drawn back, strangely, to a contemplation of the Falls” and provides an account of “a friend, who said that the rainbows over the Falls were like the arts and beauty and goodness, with regard to the stream of life,” the author does not provide details to show that every observer’s experience with the Falls is different. Rather, the author explains that “the Victorian lies very close below the surface in every man” (paragraph 4).
- D. Incorrect. While the setting at night does provide a place of contemplation, the author notes the “dark flood” as the overall illustration of the human experience.

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With which statement would the author of this excerpt **most likely** agree?

- A. A sense of ease and assurance comes with accepting one’s fate.
- B. No matter where one’s path goes in life, one will always have regrets.
- C. The best way to overcome fear is to recognize it and then defy it.
- D. Reason will die out with humanity, but art will remain immortal.

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The question asks for the statement the author would **most likely** agree with.

- A. **CORRECT.** In paragraph 4, the author states that the Falls make a person feel "with an almost insupportable and yet comforting certitude, that both men and nations are hurried onwards to their ruin or ending." Later, the final sentence says, "With some such thoughts does the platitudinous heart win from the confusion and thunder of a Niagara peace."
- B. Incorrect. Although in paragraph 4 the author states that "one can sit and let great cloudy thoughts of destiny and the passage of empires drift through the mind; for such dreams are at home by Niagara" and that "a man's life is of many flashing moments," the author does not suggest that one will always have regrets no matter where one's path goes in life.
- C. Incorrect. While the excerpt discusses fear when experiencing the power of the Falls, the excerpt does not support the idea that one should defy fear.
- D. Incorrect. The excerpt states in paragraph 4 that art is "unable to stay."

**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.

*Zitkala-Sa (Gertrude Simmons Bonnin) was a Native American writer, musician, teacher, and political activist who was raised on the Yankton Sioux Reservation in South Dakota. In 1900 she published "Impressions of an Indian Childhood" (the term Indian was commonly used at the time to refer to Native American people) to expose readers to what life is like on a reservation.*

## Excerpt from "Impressions of an Indian Childhood"

by Zitkala-Sa

- 1 Soon after breakfast Mother sometimes began her beadwork. On a bright, clear day, she pulled out the wooden pegs that pinned the skirt of our wigwam<sup>1</sup> to the ground, and rolled the canvas part way up on its frame of slender poles. Then the cool morning breezes swept freely through our dwelling, now and then wafting the perfume of sweet grasses from newly burnt prairie.
- 2 Untying the long tasseled strings that bound a small brown buckskin<sup>2</sup> bag, my mother spread upon a mat beside her bunches of colored beads, just as an artist arranges the paints upon his palette. On a lapboard she smoothed out a double sheet of soft white buckskin; and drawing from a beaded case that hung on the left of her wide belt a long, narrow blade, she trimmed the buckskin into shape. Often she worked upon small moccasins for her small daughter. Then I became intensely interested in her designing. With a proud, beaming face, I watched her work. In [my] imagination, I saw myself walking in a new pair of snugly fitting moccasins. I felt the envious eyes of my playmates upon the pretty red beads decorating my feet.
- 3 Close beside my mother I sat on a rug, with a scrap of buckskin in one hand and an awl in the other. This was the beginning of my practical observation lessons in the art of beadwork. From a skein<sup>3</sup> of finely twisted threads of silvery sinews my mother pulled out a single one. With an awl she pierced the buckskin, and skillfully threaded it with the white sinew. Picking up the tiny beads one by one, she strung them with the point of her thread, always twisting it carefully after every stitch.
- 4 It took many trials before I learned how to knot my sinew thread on the point of my finger, as I saw her do. Then the next difficulty was in keeping my thread stiffly twisted, so that I could easily string my beads upon it. My mother required of me original designs for my lessons in beading. At first I frequently ensnared many a sunny hour into working a long design. Soon I learned from self-inflicted punishment to refrain from drawing complex patterns, for I had to finish whatever I began.
- 5 After some experience I usually drew easy and simple crosses and squares. These were some of the set forms. My original designs were not always symmetrical nor sufficiently characteristic, two faults with which my mother had little patience. The quietness of her oversight made me feel strongly responsible and dependent upon my own judgment. She treated me as a dignified little individual as long as I was on my good behavior; and how humiliated I was when some boldness of mine drew forth a rebuke from her!

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<sup>1</sup>**wigwam:** hut with an arched framework of poles covered with bark, mats, or animal hides

<sup>2</sup>**buckskin:** leather made from the skin of a male deer

<sup>3</sup>**skein:** coiled length of yarn or other thread loosely wound on a reel

- 6 In the choice of colors she left me to my own taste. I was pleased with an outline of yellow upon a background of dark blue, or a combination of red and myrtle-green. There was another of red with a bluish-gray that was more conventionally used. When I became a little familiar with designing and the various pleasing combinations of color, a harder lesson was given me. It was the sewing on, instead of beads, some tinted porcupine quills, moistened and flattened between the nails of the thumb and forefinger. My mother cut off the prickly ends and burned them at once in the centre fire. These sharp points were poisonous, and worked into the flesh wherever they lodged. For this reason, my mother said, I should not do much alone in quills until I was as tall as my cousin Warca-Ziwin.
- 7 Always after these confining lessons I was wild with surplus spirits, and found joyous relief in running loose in the open again. Many a summer afternoon a party of four or five of my playmates roamed over the hills with me. We each carried a light sharpened rod about four feet long, with which we pried up certain sweet roots. When we had eaten all the choice roots we chanced upon, we shouldered our rods and strayed off into patches of a stalky plant under whose yellow blossoms we found little crystal drops of gum. Drop by drop we gathered this nature's rock-candy, until each of us could boast of a lump the size of a small bird's egg. Soon satiated with its woody flavor, we tossed away our gum, to return again to the sweet roots.

From "Impressions of an Indian Childhood" by Zitkala-Sa—Public Domain

#### A BRIEF HISTORY OF BEADWORK IN SOUTH DAKOTA

Date	Event
1500s	The Dakota use beads made from bones, shells, stones, and animal teeth. European traders bring glass beads to North America.
Late 1600s	The Dakota begin trading with the French in Minnesota.
1830s	The Dakota begin using glass beads in clothing, artwork, and decorations in place of Native-made beads.
1862–1865	The Dakota are expelled from their homelands in Minnesota as a result of the U.S.-Dakota War.
1900s–1920s	The Dakota create items to sell outside their community.

Source: MNopedia

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Excerpt from "Impressions of an Indian Childhood"

by Zitkala-Sa

**1** Soon after breakfast Mother sometimes began her beadwork. On a bright, clear day, she pulled out the wooden pegs that pinned the skirt of our wigwam to the ground, and rolled the canvas part way up on its frame of slender poles. Then the cool morning breezes swept freely through our dwelling, now and then wafting the perfume of sweet grasses from newly burnt prairie.

**2** Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

In paragraph 1, the phrases "cool morning breezes swept freely" and "wafting the perfume of sweet grasses" affect the tone of the excerpt by suggesting

- A. the sadness that the author feels reflecting upon her former way of life.
- B. the enthusiasm with which the author approached her work indoors.
- C. the fond feelings that the author has toward her childhood experiences.
- D. the mix of emotions that the author feels toward her work and her mother.

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Excerpt from "Impressions of an Indian Childhood"

The question asks how the phrases "cool morning breezes swept freely" and "wafting the perfume of sweet grasses" affect the tone of paragraph 1 in the excerpt.

- A. Incorrect. Although the author describes in paragraph 1 the setting of her childhood experiences, the positive wording of the phrases the author uses in the paragraph ("swept freely" and "perfume of sweet grasses") does not suggest a tone of sadness the author feels when she reflects on her former way of life.
- B. Incorrect. Although the phrases "cool morning breezes swept freely" and "wafting the perfume of sweet grasses" used in paragraph 1 create a positive tone, the phrases do not suggest an enthusiasm for the author's work but rather suggest an appreciation of the peaceful beauty of her childhood.
- C. **CORRECT.** In paragraph 1, the phrases "cool morning breezes swept freely" and "wafting the perfume of sweet grasses" are used to describe where the author's childhood experiences took place. The phrases create a tone of fondness and evoke a feeling of happiness through their lyrical sensory detail: "swept freely" suggests a sense of joyful possibility, while "perfume," "sweet," and "cool" convey delight.
- D. Incorrect. Although the author describes her mother's beadwork lessons as "confining" in paragraph 7, the phrases in paragraph 1 do not suggest that the author feels conflicting or mixed emotions toward her work and her mother. Instead, the phrases convey a positive tone by affectionately describing the author's childhood home.

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**2** Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

The phrase "just as an artist arranges the paints upon his palette" in paragraph 2 suggests that

- A. beadwork is a true form of art.
- B. color is a source of artistic inspiration.
- C. all artistic activities begin with a series of steps.
- D. the beadworker tries to imitate art.

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The question asks what the phrase "just as an artist arranges the paints upon his palette" in paragraph 2 suggests in the excerpt.

- A. **CORRECT.** In paragraph 2, by comparing the way her mother arranges the beads to the way a painter "arranges the paints upon his palette," the author emphasizes that her mother approaches her craft just as a painter does, thus suggesting that beadwork is a true form of art.
- B. Incorrect. Although the author mentions "bunches of colored beads" in paragraph 2, this detail does not provide enough evidence for the idea that color inspires beadworkers. The phrase "just as an artist arranges the paints upon his palette" indicates the connection of beadwork to other forms of art in general, not necessarily to the specifics of color as a source of inspiration.
- C. Incorrect. In paragraph 2, the author describes her mother "untying the long tasseled strings" and then spreading "upon a mat beside her bunches of colored beads." However, the phrase "just as an artist arranges the paints upon his palette" does not suggest that all artistic activities begin with a series of steps. There is no mention in the passage of any other artistic activities involving multiple initial steps.
- D. Incorrect. In paragraph 2, the author describes how her mother "spread upon a mat beside her bunches of colored beads" as the first step in the artistic process described in the passage. Therefore, the comparison between the mother's process and a painter arranging paints on a palette suggests that the mother is creating art, not imitating it. There is no indication that the mother is copying a technique she has seen in other art forms.

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**2** Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

The author's use of sequence in paragraphs 1 and 2 contributes to the development of ideas in the excerpt by

- A. listing the many steps that are involved in the process of beading in order to explain its difficulty and complexity.
- B. conveying the importance of following the steps of the beading process in a precise order to work most efficiently.
- C. emphasizing the time required to fully prepare for and execute the many large and small tasks in the activity of beading.
- D. detailing each step in preparation for beading in order to highlight the author's enthusiasm for the work.

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Excerpt from "Impressions of an Indian Childhood"

by Zitkala-Sa

1 Soon after breakfast Mother sometimes began her beadwork. On a bright, clear day, she pulled out the wooden pegs that pinned the skirt of our wigwam to the ground, and rolled the canvas part way up on its frame of slender poles. Then the cool morning breezes swept freely through our dwelling, now and then wafting the perfume of sweet grasses from newly burnt prairie.

2 Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

The question asks how the author's use of sequence in paragraphs 1 and 2 contributes to the development of ideas in the excerpt.

- A. Incorrect. In paragraph 2, the author does list the steps her mother takes in preparation to do beadwork, such as "untying the long tasseled strings" of the bag of beads, spreading the beads beside her on a mat, and using "a long, narrow blade" to trim the buckskin into shape. However, the language used to describe this sequence does not indicate that preparing to work with beads is difficult or complex.
- B. Incorrect. Although the author's description of untying the bag of beads, spreading the beads upon a mat, smoothing out a sheet of buckskin, and trimming the buckskin into shape in paragraph 2 indicates that the mother follows a certain routine, it does not place any emphasis on working most efficiently by following the steps of the beading process in a precise order.
- C. Incorrect. In paragraph 2, the author describes her mother "untying the long tasseled strings that bound a small brown buckskin bag," "spread[ing them] upon a mat beside her bunches of colored beads," "smooth[ing] out a double sheet of soft white buckskin; and drawing from a beaded case that hung on the left of her wide belt a long, narrow blade" to trim the buckskin. Although these descriptions do outline the steps in her process for creating beadwork, they do not emphasize the time required to do so, since the author does not mention in the excerpt how long it took her mother to fully prepare for and complete the large and small tasks in the activity of beading.
- D. **CORRECT.** In paragraph 1, the author describes how the morning begins with her mother rolling up the canvas of the wigwam and allowing the breeze to come in. In paragraph 2, the author uses sensory language and precise sequencing to describe the way her mother prepares the beading materials by untying "the long tasseled strings that bound a small brown buckskin bag," spreading the "bunches of colored beads" beside her, and smoothing out "a double sheet of soft white buckskin." This combination of sequence and sensory language highlights the author's enthusiasm for beadwork by emphasizing that the author pays close attention to her mother's preparations.

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**2** Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

Which sentence **best** summarizes the process of beading that is described in the excerpt?

- A. Take a buckskin bag full of beads and spread them out on a mat in different colors like a paint palette; take a double sheet of buckskin and smooth it out on a table; take a sinew and awl and thread the beads onto the buckskin in a desired pattern.
- B. Cut the double sheet of buckskin into a shape; take a skein of sinew and pierce the buckskin with an awl; thread the sinew with beads of many different colors in a simple or complex pattern; twist the sinew to keep it tight after every stitch into the buckskin.
- C. Arrange the beads into groups of colors on a mat; smooth out a double sheet of buckskin and cut it to shape; take a single thread of sinew; pierce the buckskin with an awl; thread the buckskin with the sinew and string it with beads, carefully twisting after every stitch.
- D. Gather beads, buckskin, sinew, and awl and place them on a mat; cut the buckskin into the desired shape; decide on a pattern for the beads and create it using the sinews and the awl; thread the beads onto the sinew in the desired pattern and twist it tight.

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2 Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

The question asks which sentence **best** summarizes the process of beading that is described in the excerpt.

- A. Incorrect. In paragraphs 2 and 3, the author describes how at the beginning of the process her mother "smoothed out a double sheet of soft white buckskin" on a lapboard (paragraph 2) and how she strings the beads into a pattern. However, this sentence does not describe the steps that take place between the preparation and the stringing of the beads. Thus, this sentence does not best summarize the beading process.
- B. Incorrect. In paragraphs 2 and 3, the author describes the process her mother uses to string the beads with "the point of her thread, always twisting it carefully after every stitch" (paragraph 3). While this sentence includes some of the steps in the beading process, it does not describe the necessary preparation, namely spreading the beads and the buckskin out on a table. Thus, this sentence does not best summarize the beading process.
- C. **CORRECT.** This sentence best summarizes the process of beading that is described in the excerpt because it includes details about each step in the process. In paragraph 2, the author explains how her mother "spread upon a mat beside her bunches of colored beads" and how "on a lapboard she smoothed out a double sheet of soft white buckskin; and drawing from a beaded case that hung on the left of her wide belt a long, narrow blade, she trimmed the buckskin into shape." The author continues her description in paragraph 3, stating, "From a skein of finely twisted threads of silvery sinews my mother pulled out a single one. With an awl she pierced the buckskin, and skillfully threaded it with the white sinew. Picking up the tiny beads one by one, she strung them with the point of her thread, always twisting it carefully after every stitch."
- D. Incorrect. In paragraphs 2 and 3, the author describes the process her mother uses as she "smoothed out a double sheet of soft white buckskin" (paragraph 2) on a lapboard before stringing the beads. While this sentence includes most of the steps in the beading process, it excludes the step of piercing the buckskin. This sentence also provides few details about the process of beading and uses vague wording to describe each step. Therefore, the sentence does not best summarize the beading process.

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**2** Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

The idea that mastering moccasin design and creation requires experience is **best** illustrated in the excerpt through

- A. the information about the advanced technique of incorporating porcupine quills into a design.
- B. the descriptions of the special materials that must be used to make decorated moccasins.
- C. the descriptions of the various color combinations that make an attractive moccasin design.
- D. the example of the author successfully and independently using a sharpened rod.

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2 Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

The question asks how the idea that mastering moccasin design and creation requires experience is **best** illustrated in the excerpt.

- A. **CORRECT.** In paragraph 6, the author states that when she became more familiar with elements of design, "a harder lesson was given me." According to the author, sewing on porcupine quills is a much more difficult task to master because it requires experience in handling the poisonous porcupine quills, which is why her mother told her not to "do much alone in quills" until she was older (paragraph 6). This information best illustrates the idea that mastering moccasin design and creation requires experience.
- B. Incorrect. Although the author provides detailed descriptions of the materials used to make decorated moccasins ("colored beads" [paragraph 2]; "a skein of finely twisted threads of silvery sinews" [paragraph 3]; "tinted porcupine quills, moistened and flattened between the nails of the thumb and forefinger" [paragraph 6]), these descriptions do not illustrate the experience that is needed to gain mastery of moccasin design and creation.
- C. Incorrect. Although the author describes the color combinations she used in making moccasins ("I was pleased with an outline of yellow upon a background of dark blue, or a combination of red and myrtle-green. There was another of red with a bluish-gray that was more conventionally used" [paragraph 6]), this information mainly illustrates the author's satisfaction with her moccasin design, not the importance of experience in mastering the creation and design of moccasins.
- D. Incorrect. In paragraph 7, the author tells of using a sharpened rod to spear gum from trees. She explains that she and her playmates used the rods to "[pry] up certain sweet roots" to find the gum. The detail of the sharpened rod is from a recollection about the playtime that followed the "confining lessons" of moccasin making. However, the sharpened rod was not used to create moccasins.

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**2** Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

How does the author distinguish her point of view from that of her mother?

- A. by describing their techniques for knotting sinew thread (paragraph 4)
- B. by describing their approaches to beadwork design (paragraph 5)
- C. by stating her mother's instructions on working with quills (paragraph 6)
- D. by stating her mother's ideas about activities after lessons (paragraph 7)

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- 2 Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

The question asks how the author distinguishes her point of view from that of her mother.

- A. Incorrect. In paragraph 4, the author explains that "it took many trials before I learned how to knot my sinew thread on the point of my finger, as I saw her do" and that the "difficulty was in keeping my thread stiffly twisted, so that I could easily string my beads upon it." Although this explanation describes the author's difficulty in performing the same task as her mother, it does not distinguish her point of view from that of her mother. In fact, they seem to share the same point of view regarding the importance of the technique the author is attempting to learn.
- B. **CORRECT.** In paragraph 5, the author distinguishes her point of view from that of her mother by describing their approaches to beadwork design. In the paragraph, the author states, "I usually drew easy and simple crosses and squares" and "My original designs were not always symmetrical nor sufficiently characteristic, two faults with which my mother had little patience." The author also distinguishes her point of view from that her of mother by stating that "the quietness of [my mother's] oversight made me feel strongly responsible and dependent upon my own judgment."
- C. Incorrect. In paragraph 6, the author states, "My mother cut off the prickly ends and burned them at once in the centre fire. These sharp points were poisonous, and worked into the flesh wherever they lodged. For this reason, my mother said, I should not do much alone in quills until I was as tall as my cousin Warca-Ziwin." Although these instructions explain the importance of having experience and skill when working with quills, they do not distinguish the author's point of view from that of her mother.
- D. Incorrect. In paragraph 7, the author describes her beadwork lessons as "confining" and states that she liked to roam "over the hills" with her playmates after the lessons. However, she makes no mention of her mother in paragraph 7; the activities and ideas stated there belong to the author, not the mother.

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**2** Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

Read this sentence from paragraph 7.

**Always after these confining lessons I was wild with surplus spirits, and found joyous relief in running loose in the open again.**

Which sentence **best** describes how this sentence fits into the overall structure of the excerpt?

- A. It introduces a shift from the author's demanding relationship with her mother to her more relaxed relationships with friends.
- B. It signals a change from the challenging aspects of life on the reservation to the advantages of living on the prairie.
- C. It highlights a contrast between the focus and control required while working and the freedom of having fun outside.
- D. It concludes the progression of events in the narrative by describing the sequence of events at the end of the author's day.

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2 Untying the long tasseled strings that bound a small brown buckskin bag, my mother spread upon a mat

The question asks which sentence **best** describes how the sentence from paragraph 7 fits into the overall structure of the excerpt.

- A. Incorrect. Though the author feels humiliated "when some boldness of mine drew forth a rebuke from" her mother (paragraph 5) and characterizes her lessons with her mother as "confining" (paragraph 7), the overall passage does not portray a demanding relationship between the author and the mother. The shift introduced in the sentence from paragraph 7 is not from one of the author's relationships to another; it is from work to play.
- B. Incorrect. In paragraph 6, the author explains how working with porcupine quills is difficult because the "sharp points were poisonous, and worked into the flesh wherever they lodged." Although this sentence suggests that working with porcupine quills was challenging, the sentence from paragraph 7 does not signal a change from the challenging aspects of life on the reservation to the advantages of living on the prairie. Most of paragraph 6 describes the author's pleasure in creating designs in different colors.
- C. **CORRECT.** In the sentence from paragraph 7, the author refers to her beadwork lessons as "confining" and states that after the lessons, she "was wild with surplus spirits" and "found joyous relief" in being outside and running around. The phrases "surplus spirits" and "joyous relief" highlight a sense of freedom that stands in strong contrast to the "confining" nature of the author's beadwork lessons, which required intense focus and control.
- D. Incorrect. In paragraph 7, the author describes how "many a summer afternoon" after her beadwork lessons, she and her friends used "a light sharpened rod" to gather "sweet roots" and "little crystal drops of gum." She then explains that they later "tossed away our gum, to return again to the sweet roots." However, the sentence from paragraph 7 does not conclude the progression of events in the narrative by describing the sequence of events at the end of the author's day; the sentence appears at the beginning of paragraph 7 and provides a contrast with events from the previous paragraph.

**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.

## Bird Talk

by Carl Sandburg

And now when the branches were beginning to be heavy,  
It was the time when they once had said, "This is the  
beginning of summer."

The shrilling of the frogs was not so shrill as in the  
5 first weeks after the broken winter;

The birds took their hops and zigzags a little more  
anxious; a home is a home; worms are worms.

The yellow spreads of the dandelions and buttercups  
reached across the green pastures.

10 *Tee whee* and *tee whee* came on the breezes, and the grackles  
chuzzled their syllables.

And it was the leaves with a strong soft wind over them  
that talked most of all and said more than any others  
though speaking the fewest words.

15 It was the green leaves trickling out the gaunt nowhere  
of winter, out on the gray hungry branches—

It was the leaves on the branches, beginning to be heavy,  
who said as they said one time before, "This is the be-  
ginning of summer."

20 We shall never blame the birds who come  
where the river and the road make the Grand Crossing  
and talk there, sitting in circles talking bird talk.

If they ask in their circles as to who is here  
and as to who is not here and who used to be here,

25 Or if instead of counting up last year as against  
this year, they count up this year as against next  
year, and have their bird chatter about who is here  
this year who won't be here next year,

We shall never blame the birds.

30 If I have put your face among leaf faces, child,  
Or if I have put your voice among bird voices,  
Blame me no more than the bluejays.

"Bird Talk" by Carl Sandburg—Public domain.

Bird Talk

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And now when the branches were beginning to be heard  
It was the time when they once had said, "This is the  
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first weeks after the broken winter;

The birds took their hops and zigzags a little more  
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of winter, out on the gray hungry branches—

It was the leaves on the branches beginning to be heard

Read lines 6–7 from the poem.

**The birds took their hops and zigzags a little more  
anxious; a home is a home; worms are worms.**

What idea from the second stanza do the lines help develop?

- A. The birds are eager for the return of warmer months.
- B. The birds are most likely to thrive during the spring.
- C. The birds naturally adjust to the seasonal changes.
- D. The birds instinctively prepare for the future.

## "Bird Talk"

The question asks how lines 6–7 from the poem develop an idea from the second stanza.

- A. Incorrect. In lines 2–3, the tree branches exclaim that “ ‘This is the / beginning of summer,’ ” and the birds respond by taking “their hops and zigzags a little more / anxious” (lines 6–7); however, the birds’ eager reaction to the return of warmer weather is not referenced in the second stanza of the poem, which is more about the nature of birds generally than the changing of the seasons.
- B. Incorrect. Birds are more likely to thrive in warmer weather as evidenced by some birds’ migration to a warmer climate during winter, and the creatures in the first stanza are responding to the “ ‘beginning of summer’ ” (line 3) in their own way, such as the birds who are taking “their hops and zigzags a little more / anxious” (lines 6–7). However, the thriving of birds during a particular season is not the focus of the second stanza; rather, it is focused on the general nature of birds.
- C. **CORRECT.** The birds are taking “their hops and zigzags a little more / anxious” (lines 6–7) in light of warmer weather, but they are not making a big to-do of the change because “a home is a home; worms are worms” (line 7) any time of the year. Such a natural adjustment to seasonal changes is reflected in the second stanza, where the birds “count up this year as against next / year” (lines 26–27) because they are well accustomed to the cyclical nature of things.
- D. Incorrect. Although the birds’ actions of “hops and zigzags” (line 6) may indicate some sort of preparation, these actions are not preparation but rather the internalized cognizance of the change that has occurred with little conscious thought. As revealed in the second stanza, birds do not ponder much about past or future but rather adapt naturally as things change.

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The birds took their hops and zigzags a little more  
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And it was the leaves with a strong soft wind over them  
that talked most of all and said more than any other  
though speaking the fewest words.

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of winter, out on the gray hungry branches—

It was the leaves on the branches beginning to be heard

Read lines 12-14 from the poem.

**And it was the leaves with a strong soft wind over  
them  
that talked most of all and said more than any  
others  
though speaking the fewest words.**

What does the phrase "talked most of all" in line 13 convey?

- A. It establishes that the speaker thinks the sound of wind in the leaves is the best indication that the season is changing.
- B. It introduces the idea that the sound of the wind in the leaves remains constant throughout the seasons.
- C. It suggests that the speaker is overwhelmed by the sounds of nature that emerge as the season changes.
- D. It emphasizes that the sounds of nature enable the speaker to appreciate each season of the year.

This question asks for what a phrase reveals about the speaker's perspective on the change in seasons.

- A. **CORRECT.** The first stanza of the poem establishes the way different parts of the natural world, including both plants and animals, respond to the change in season. These lines reflect the way the wind in the leaves is the best indication of the seasonal change because it is the wind in the leaves that "talked most of all and said more than any others / though speaking the fewest words" (lines 13-14).
- B. Incorrect. Although the sound of the wind is the most obvious sign of the seasonal change per the speaker, it is in response to the " 'beginning of summer' " (line 3) that the wind speaks through the leaves. The poem does not reveal that this figurative speech occurs throughout the seasons, only that it occurs during the transition to summer.
- C. Incorrect. While the language used by the speaker indicates a deep appreciation for the natural phenomenon being witnessed, the language used does not indicate a feeling of being overwhelmed but rather a feeling of awareness.
- D. Incorrect. Using the personification of the wind "speaking" (line 14) indicates an appreciation by the speaker for the power and volume of the wind's voice, but only one instance of the wind's speech, that which occurs at the " 'beginning of summer' " (line 3), is chronicled by the speaker in the poem.

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It was the leaves on the branches beginning to be heard

How does the repetition of " 'This is the beginning of summer' " in lines 2-3 and lines 18-19 contribute to the meaning of the poem?

- A. It suggests that the shift to summer occurs in the same way each year.
- B. It emphasizes the idea that living things are prepared for the change of season.
- C. It highlights the idea that the first signs of summer are surprising each year.
- D. It builds expectations about what the natural world looks like during a change of season.

The question asks how the repetition of a phrase contributes to the meaning of the poem in terms of conveying information about a cyclical event.

- A. **CORRECT.** This phrase is used twice verbatim, in both cases to show the figurative words spoken by the branches (lines 2-3) and the leaves on the branches (lines 18-19). Repetition of this phrase conveys the idea that the transition to summer occurs in the same manner each subsequent year and thus evokes the same response from nature.
- B. Incorrect. While living things—branches and leaves—both make identical figurative utterances, they do so not because they have prepared for such an event. Rather, these living things take the change in stride because of the sameness and expectedness of the seasonal shifts, which occur in the same way each time.
- C. Incorrect. Even though the branches and leaves have been imbued by the speaker with some degree of consciousness in their figurative ability to speak, they are not surprised by the change in seasons. They say the same thing each year because the same thing occurs each year in the same way.
- D. Incorrect. Certain lines of the poem do describe the natural world during the change of seasons, such as lines 8-9: “The yellow spreads of the dandelions and buttercups / reached across the green pastures.” However, this repeated phrase serves to evoke a sense of sameness and inevitability; it is not a phrase related to the physical appearance of the natural world, only the way the natural world responds to the seasonal change with simple acceptance for its sameness. The repeated lines do not hold any sort of expectation or anticipation for the coming of summer; they help relay observations made about the state of the season.

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of winter, out on the gray hungry branches—

It was the leaves on the branches beginning to be heard

Which lines from the poem **best** contrast with the idea of winter's scarcity and bleakness?

- A. "The shrilling of the frogs was not so shrill as in the / first weeks after the broken winter;" (lines 4-5)
- B. "The yellow spreads of the dandelions and buttercups / reached across the green pastures." (lines 8-9)
- C. "*Tee whee* and *tee whee* came on the breezes, and the grackles / chuzzled their syllables." (lines 10-11)
- D. "Or if instead of counting up last year as against / this year, they count up this year as against next" (lines 25-26)

The question asks for the identification of a description that contrasts with the scarcity and bleakness of winter.

- A. Incorrect. These lines indicate that the frogs are first very excited about the shift from winter to spring, which causes them to make a loud “shrilling,” yet their sounds lessen after a time and grow weaker. As such, these lines contrast two periods of spring (early vs. later) and the response of the frogs to these two periods; the lines do not contrast the bleakness of winter with the abundance of spring or summer.
- B. **CORRECT.** During winter, there is scarcity of plant life and a bleak landscape: trees lose their leaves, snow covers the ground, and nature appears dark and shuttered. In contrast, these lines reveal the bright “yellow spreads” of flowers and the verdant “green pastures” that are signs that winter has abated.
- C. Incorrect. This description contrasts the sounds of “the breezes” of warmer air and the sounds made by grackles—a type of bird—rather than the bleakness and scarcity of winter and the abundance of the “ ‘beginning of summer’ ” (line 3).
- D. Incorrect. These lines show the contrast between the two ways of looking at things in terms of past vs. present or present vs. future; in this instance, the lines reveal the way birds naturally expect and adapt to the passing of time and the change of seasons. The lines do not present a contrast between winter and spring.

Bird Talk

by Carl Sandburg

And now when the branches were beginning to be heard  
It was the time when they once had said, "This is the  
beginning of summer."

5 The shrilling of the frogs was not so shrill as in the  
first weeks after the broken winter;

The birds took their hops and zigzags a little more  
anxious; a home is a home; worms are worms.

The yellow spreads of the dandelions and buttercups  
reached across the green pastures.

10 *Tee whee* and *tee whee* came on the breezes, and the  
chuzzled their syllables.

And it was the leaves with a strong soft wind over them  
that talked most of all and said more than any other  
though speaking the fewest words.

15 It was the green leaves trickling out the gaunt nowhere  
of winter, out on the gray hungry branches—

It was the leaves on the branches beginning to be heard

Throughout the poem, the poet conveys the speaker's point of view by

- A. gradually moving the speaker's attention from one element of nature to another.
- B. providing the speaker's motivation for describing the landscape in great detail.
- C. highlighting the speaker's emotional response as each season passes.
- D. shifting the speaker's focus from external observations to personal reflection.

This question asks for an explanation of how the poet conveys the speaker's point of view on the natural world and the change of seasons as presented in the poem.

- A. Incorrect. Though in the first stanza the speaker describes various elements of nature such as branches, frogs, birds, flowers, and leaves, these elemental shifts are not precisely gradual and occur only in the first stanza. Further, the first stanza, though appreciative of the natural world, is primarily descriptive and does not develop the speaker's perspective to the degree that other parts of the poem do.
- B. Incorrect. While it may be inferred that the speaker describes the landscape to such a degree because it has revealed a seasonal shift, that this is indeed the speaker's motivation is never explicitly conveyed by the poet.
- C. Incorrect. Multiple seasons do not pass in the poem; only the shift to the " 'beginning of summer' " (line 3) occurs in an endless cycle. Further, the speaker does not reveal an emotional response; it is the responses of nature that the speaker describes.
- D. **CORRECT.** The first stanza is the speaker's observations of the natural world embracing a new season. In the second stanza, the speaker begins to reflect on how the natural world, as embodied by the birds, calmly accepts seasonal change in its perpetual sameness. The reflection continues in the third stanza, where it is revealed that the speaker has been addressing these observations to a child.

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Over the course of the poem, a central idea is developed **mainly** through the speaker's


- A. sense of eager anticipation as winter ends.
- B. description of the changes in nature as the seasons transition.
- C. observation of the birds' behavior as summer begins.
- D. prediction of future alterations in the physical landscape.

The question asks how the central idea about the natural acceptance of change by nature is developed by the speaker of the poem.

- A. Incorrect. The speaker is an observer of the changes in nature as propelled by the seasons and shows no personal eagerness for the end of winter. Further, even though nature rejoices at the end of winter as exemplified by “the shrilling of the frogs” (line 4), the speaker merely records this and does not share in this display.
- B. **CORRECT.** The response of nature to the “beginning of summer” (line 3) is the primary focus of the poem as revealed by the speaker through vivid descriptions of the sights, sounds, movements, and attitudes of the natural world.
- C. Incorrect. The second stanza of the poem begins a reflection on birds “sitting in circles talking bird talk” (line 22) and taking a sort of attendance of who is present, but this behavioral description is largely figurative and meant to illustrate a point about the way the birds adapt quickly to change, not to develop a central idea of the poem in terms of how nature responds generally.
- D. Incorrect. Seasonal changes are inevitable and cyclical per the speaker, but the speaker does not predict future changes to the landscape as a method of developing the central idea. Rather, the speaker describes nature’s response to changes that have already occurred.

**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.

*The Great Serpent Mound, located in Adams County, Ohio, is a human-made mound of earth that researchers believe was created between 300 B.C. and A.D. 1100 by an indigenous culture.*

## Serpent Mound

Ohio, 1846

Brush Creek stood low when the museum men came  
with their measuring tapes and sketchbooks.

It was winter. Fringed with ice,  
the creek doubled back on itself

5 as if it had forgotten something.

Pa was in Cincinnati, or else on his way home,  
so Ma told me to lead the men  
into the marshy low grounds. It being winter,  
there was little underbrush to speak of—

10 in the summer there would have been  
briars, poison ivy, biting flies. I listened  
for the *swish* of a beaver's heavy tail,  
the chitter of a chickadee, or the cry of a hawk,  
but the winter silence of the creek pressed

15 down on all of us like a weight.

The humps in the ground were all but  
invisible until you were right up on them. The figure  
was even less obvious: the sinuous body,  
the tail coiled three times around,

20 and at the other end, the mouth wide open.

In the summer the creek bottom was crowded  
with so much life that you could trip over  
the ridges of earth before you saw  
anything at all. In winter you could climb

25 a tree and get some idea of the whole thing:  
the serpent's body undulating, slithering  
silently across the ancient

earth. At the mouth end, there was an oval mound  
as if the snake were about to swallow an egg—

30 as snakes sometimes did in our rickety  
henhouse—my Pa always said, or

as if swallowing the sun, one of the museum  
men suggested, taking notes with his quill pen,  
an old-style inkhorn slung at his side.

35 I liked that: swallowing the sun,  
just the sort of thing a snake might do,  
might want to do. When, later, I told my sister Ruth,  
she disagreed. It is singing to the sun,  
she insisted. That is why its mouth

40 is wide open. She said, "Sometimes I think  
I hear it on summer nights. Not swallowing, singing."

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How does the poem's form contribute to the poem's meaning?

- A. The use of one continuous stanza and the pattern of the lines mimic the long and winding shape of the mound.
- B. The uneven line lengths emphasize the variety of ways people interpret the meaning of the mound.
- C. The dashes throughout the poem highlight the speaker's changing thoughts about the significance of the mound.
- D. The lack of a regular rhyme scheme and meter convey that the speaker struggles to comprehend the vastness of the mound.

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

- A. **CORRECT.** The poem is structured as one long stanza. The line lengths throughout the poem and the line indents (such as those in lines 7-10) create a visual effect so that the poem itself mimics the shape of the Serpent Mound.
- B. Incorrect. The uneven line lengths in the poem do not indicate the different interpretations of the mound; separate stanzas or other stopping points would more effectively point to contrasting ideas.
- C. Incorrect. The dashes in the poem lead to further explanation of a thought, not a change of thought.
- D. Incorrect. The lack of regular rhyme and meter is intended to create a conversational tone rather than show the speaker's struggle to grasp how large the mound is.

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for the *swish* of a beaver's heavy tail,

Which lines reveal how the setting affects the speaker and the men from the museum?

- A. "It being winter, / there was little underbrush to speak of—" (lines 8-9)
- B. "but the winter silence of the creek pressed / down on all of us like a weight." (lines 14-15)
- C. "The humps in the ground were all but / invisible until you were right up on them." (lines 16-17)
- D. "In the summer the creek bottom was crowded / with so much life that you could trip" (lines 21-22)

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

- A. Incorrect. The words “being winter” (line 8) work to establish the setting, but lines 8 and 9 do not describe the effect the winter setting has on the speaker and the men.
- B. **CORRECT.** The imagery in lines 14 and 15 describes how the winter silence makes the speaker and the men feel emotional heaviness: it “pressed / down on all of us like a weight.”
- C. Incorrect. Although the words “the humps in the ground were all but / invisible” describe how the setting appears to the speaker and the men, lines 16 and 17 do not describe how the setting affects them.
- D. Incorrect. Although lines 21 and 22 do describe the setting, the lines do not describe how the setting affects the speaker and the men. The lines describe the setting in the summer, which is before the men from the museum show up.

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Lines 1-2 contribute to the development of ideas in the poem by

- A. suggesting that the men are too busy with their work to talk to the speaker.
- B. helping establish the reason for the men's visit and purposeful behavior.
- C. hinting that the men have hidden motives for studying the mound.
- D. indicating why the speaker is fascinated by the men and wants to help them.

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

- A. Incorrect. The idea that the men are too busy with their work to talk to the speaker is not conveyed in the poem, and, in fact, one of the museum men discusses the oval mound with the speaker (“as if swallowing the sun, one of the museum / men suggested” [lines 32-33]).
- B. **CORRECT.** The lines, with their mention of measuring tapes and sketchbooks, indicate that the reasons the museum men came were to measure the mound and to draw sketches of it.
- C. Incorrect. There is little indication in the poem that the museum men have a hidden motive for studying the mound. Lines 1-2 present a straightforward description of the men and their equipment, which emphasizes the men’s academic interest in studying the mound.
- D. Incorrect. While the speaker displays some curiosity about the work the museum men are doing (“one of the museum / men suggested, taking notes with his quill pen, / an old-style inkhorn slung at his side. / I liked that” [lines 32-35]), lines 1-2 focus on introducing the idea that the mound is a formation that is worth formal study and examination by experts.

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Read line 28 from the poem.

**At the mouth end, there was an oval mound**

How does the line contribute to the development of ideas in the poem?

- A. It describes a feature of the mound that the men from the museum need to document.
- B. It introduces a comparison of the body of the mound with the head of the mound.
- C. It introduces a feature of the mound that has a different meaning to different people.
- D. It describes a part of the mound that is difficult to see from far away.

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

- A. Incorrect. Although the museum men are documenting the shape of the mound in line 33, lines 29–32 and 35–41 focus on what the oval mound represents as interpreted by the museum men, the speaker, and the speaker's sister.
- B. Incorrect. While the lines preceding line 28 describe the body of the snake in detail ("you could climb / a tree and get some idea of the whole thing: / the serpent's body undulating, slithering / silently across the ancient / earth" [lines 24–28]), the purpose of line 28 is to begin the development of the ideas about the oval shape at the end of the mound: the serpent's mouth.
- C. **CORRECT.** Line 28 introduces the presence of the oval mound at the mouth of the snake. The meaning of this oval is of great interest to the museum men and the speaker. Line 28 leads to the idea that there is speculation about the oval mound ("as if the snake were about to swallow an egg" [line 29], "as if swallowing the sun" [line 32], and "It is singing to the sun" [line 38]).
- D. Incorrect. The speaker does not say that the oval shape near the end of the mound is difficult to see. Earlier, the speaker says that the ridges of earth are difficult to see unless you are near them, but the speaker does not say this about the oval shape.

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What impact do the phrases “all but / invisible” and “even less obvious” in lines 16–18 have on the meaning of the poem?

- A. They indicate that viewing the full size and shape of the mound is difficult.
- B. They suggest that the location of the mound is unknown to most people.
- C. They imply that the speaker wants the location of the mound to remain a secret.
- D. They reveal that the speaker is unfamiliar with the significance of the mound.

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

- A. **CORRECT.** The words “all but / invisible” indicate that a person must be close to see the humps in the ground, while the phrase “even less obvious” indicates that a person must be far away to see the overall snake shape of the mound.
- B. Incorrect. While the speaker has to lead the museum men to the mound because they did not know the exact location, the words in lines 16–18 are related to the difficulty in viewing the mound from the immediate surrounding area.
- C. Incorrect. The speaker is willing to take the museum men out to study the mound, so there is no indication in the poem that the speaker wants the location of the mound to remain a secret. The words in lines 16–18 convey the idea that the mound is difficult to see.
- D. Incorrect. While the speaker contemplates the significance of certain elements of the mound, the phrases in lines 16–18 relate to a viewer’s ability to see the physical shape of the mound, not its deeper meaning.

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What impact do the words “*swish*,” “*chitter*,” and “*cry*” in lines 12–13 have in the poem?

- A. They illustrate how lively the mound's surroundings are during the summer.
- B. They show how the mound disrupts natural life in the marsh.
- C. They indicate the variety of wildlife found in the area around the mound.
- D. They suggest that the speaker prefers the mound's appearance in winter.

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The question asks what impact the words "*swish*," "chitter," and "cry" in lines 12-13 have in the poem.

- A. **CORRECT.** The words highlight the sounds of the animals that visit the mound in the summer: the "*swish* of a beaver's heavy tail" (line 12), the "chitter of a chickadee" (line 13), and the "cry of a hawk" (line 13). These words help contrast the quiet stillness of the setting around the mound in the winter.
- B. Incorrect. While the words in lines 12-13 convey the sounds certain animals make in the summer, the sounds of the animals that live near the mound are a natural part of life in the area, not a disruption.
- C. Incorrect. The speaker is contrasting the sounds of the animals around the mound during the rest of the year with the silence of the winter months, not merely indicating the variety of wildlife.
- D. Incorrect. The speaker expresses the idea that the mound is more visible in the winter because of the lack of brush ("It being winter, / there was little underbrush to speak of" [lines 8-9]). Then lines 12-13 describe sounds, not the appearance of the mound in winter.

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How does the speaker's interaction with Ruth in lines 37–41 convey a central idea of the poem?

- A. It suggests that the most accurate interpretations of the mound come from knowing the purpose of the mound.
- B. It emphasizes that there are multiple interpretations of the mound based on feelings and experiences.
- C. It reveals the benefit of considering different interpretations of the mound's significance.
- D. It implies that scientific study of the mound's purpose will affect what the mound symbolizes to people.

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

- A. Incorrect. While there are many different interpretations of the mound's meaning, there is no way to determine which of the interpretations is most accurate, and there is no way to know the mound's true purpose.
- B. **CORRECT.** The interaction references Ruth's interpretation of the open-mouth shape as a serpent singing to the sun. This interpretation creates a joyful mood. The speaker contrasts this perspective with the idea that the mound is swallowing the sun, which creates a more aggressive feeling. These various interpretations of a physical shape arise out of what the individuals feel when they look at the mound.
- C. Incorrect. The speaker does not describe any benefit to considering what different people imagine when they see the mound. Instead, the speaker is simply describing different interpretations.
- D. Incorrect. Ruth's interpretation of the mound's shape is fanciful and symbolic. It is unlikely that scientific study would change the minds of people such as Ruth about the meaning of the mound.

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The poet contrasts the speaker's and Ruth's points of view regarding the mound by using dialogue to

- A. imply that Ruth is worried that her interpretation of the mound will be seen as too abstract.
- B. indicate that Ruth hopes her interpretation of the mound will be shared by the men from the museum.
- C. suggest that Ruth wants the speaker to agree with her interpretation of the mound.
- D. show that Ruth has already decided on her interpretation of the mound.

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there was little underbrush to speak of—


10 in the summer there would have been  
briars, poison ivy, biting flies. I listened  
for the *swish* of a beaver's heavy tail,

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

- A. Incorrect. The interpretation Ruth offers of the mound as a snake singing is abstract, but Ruth does not seem concerned that it is an overly metaphorical or figurative interpretation. The dialogue serves to highlight that Ruth is firm in her belief.
- B. Incorrect. There is no indication that the museum men are considering Ruth's interpretation of the mound or that Ruth wants them to share her interpretation. Ruth's interpretation is meant to convey an abstract idea, while the museum men would be looking for a firm academic explanation of the mound. Ruth is persistent in her belief, and the dialogue does not suggest that she is concerned with the museum men's interpretation or findings.
- C. Incorrect. Ruth merely states her interpretation and says that she thinks she hears the Serpent Mound singing sometimes. She does not seek to make the speaker agree with her.
- D. **CORRECT.** Beginning in line 37, after the speaker suggests the mound is swallowing the sun, Ruth disagrees. The poet uses the word "insisted" in line 39 to show that Ruth firmly believes in her own interpretation of the mound.

**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

*The author, Melanie Canales, is a first-generation Peruvian American farmer and beekeeper based in Virginia's Shenandoah Valley, on lands of the indigenous Monacan and Manahoac tribes. Her work focuses on creating healthy relationships between people and their surrounding ecosystems.*

## Excerpt from "Growing Peppers on the ISS Is Just the Start of Space Farming"

by Melanie Canales

- 1 Unburdened by the constraints of gravity, red and green peppers jut out at 45-degree angles inside the Advanced Plant Habitat (APH), a sort of space terrarium not much larger than a microwave. Four chile pepper plants stand effortlessly upright, despite the dozens of glossy fruits weighing them down. These plants have lived entirely in space; their leaves have never been chewed on by insects or rustled by a summer breeze, [and] their stems are unfamiliar with bending toward the sun's arc across the sky. Scissors glint under the tank's white and blue lights as astronaut Mark Vande Hei and his team snip the stems of those that are ready for harvest. The peppers whirl around their heads until the astronauts catch them and tape them against a board to photograph.
- 2 Back on Earth, the Plant Habitat-04 team of engineers and plant scientists are observing and conferring with the astronauts. Of the 26 peppers in this batch, only the 14 finest will stay on the International Space Station [ISS] for consumption. The rest will be wrapped in foil, sealed in a Ziploc bag, then frozen at a brisk  $-80$  degrees, until they can come roaring back to Earth in the next cargo capsule to be studied later. Now, after a 137-day growth cycle, the astronauts remove the plants from the module and trash them. Project Plant Habitat-04 is complete. It's taco night on the ISS.
- 3 Since 2014, NASA<sup>1</sup> has experimented with growing lettuces, brassicas,<sup>2</sup> and zinnias<sup>3</sup> in space, an endeavor that relies on highly specialized technology over 50 years in the making. [Fall 2021's] two successful pepper harvests . . . will provide data on the nutritional and psychological benefits of growing vegetables on-craft, as well as a crop's ability to reliably produce long-term in microgravity. While controlled environmental agriculture is not new, the APH experiment represents an evolution in specialized growth habitats. It doesn't aim to re-create Earth's conditions, but to perfect each isolated variable of plant growth in the clinical environment of a spaceship.
- 4 "The Advanced Plant Habitat is the most complex plant growth system on orbit today," says Lashelle Spencer, a plant scientist at NASA's Kennedy Space Center. Its more than 180 sensors control and monitor temperature, humidity, and carbon dioxide. The astronauts can adjust the color and intensity of the light, and how much moisture the plants' roots are getting. It waters itself.
- 5 It's the day after Thanksgiving, and Spencer has been at Kennedy since 5 a.m. to facilitate the peppers' final harvest. As part of the project team, she played a crucial role in preparing the

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<sup>1</sup>**NASA:** National Aeronautics and Space Administration

<sup>2</sup>**brassicas:** a large genus of herbs, such as broccoli and cabbage

<sup>3</sup>**zinnias:** a genus of herbs and low shrubs that have flowers at their heads

seeds that were sent hurtling into space in June and guiding the astronauts through maintaining the plants in orbit. . . . Though astronauts can spend upwards of 100 days in space, their on-mission meals come dehydrated and pre-packaged; their vitamins and minerals are isolated in supplements, which lose nutritional value the longer they're stored. Spencer's goal is to create the conditions necessary for cultivating healthy plants in space, so those plants can sustain healthy astronauts on long-term missions. Astronaut food is great, she says—"especially the shrimp cocktail. But you're missing that crunch. You're missing that fresh pop of flavor, the green flavor that's not there in that packaged food."

- 6 The sensory experience of growing productive crops can also help mitigate<sup>4</sup> the psychological effects of long-term space travel. . . . Spencer says the team cracked open the door of the APH every day to observe their vegetable companions with all the tenderness of home gardeners. When harvest day came, they batted their bounty around the ISS, taking selfies and delighting in watching the fruits pirouetting around the spacecraft. . . .
- 7 "We were thinking no heat, so that [the peppers] wouldn't be dangerous, but maybe the astronauts need a little spice in their life," says Paul Bosland, who along with his colleagues at the Chile Pepper Institute genetically engineered<sup>5</sup> the NuMex Española Improved chile pepper seeds grown in Plant Habitat-04. . . .
- 8 Working with NASA, Bosland cultivated a variety that could accommodate both the nutritional needs of astronauts as well as the logistics of growing a plant in space. . . .
- 9 . . . The experiment is helping gather the data necessary to determine the nutritional content of crops grown in space, and therefore how many people they can feed, and for how long. Though much is still unknown, Spencer is certain of one thing that future astronauts will need to do: "I think in an optimal world, a scientist like me would say that they would be growing plants from day one. From the day they left to the day they came back, they would be growing them."

From "Growing Peppers on the ISS Is Just the Start of Space Farming" by Melanie Canales from WIRED, December 21, 2021. Copyright © 2021 Condé Nast. All rights reserved.

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<sup>4</sup>**mitigate:** to make something less severe or harmful

<sup>5</sup>**genetically engineered:** combined parts of DNA from different plants to produce a new plant

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What is the **best** summary of the astronauts' process for Project Plant Habitat-04?

- A. After a 137-day growth cycle, the astronauts harvest the peppers while being observed and advised by plant scientists. The astronauts remove the peppers from the APH and photograph them before eating the most nutritious ones.
- B. The astronauts confer with plant scientists and engineers before selecting the 14 finest peppers to keep aboard the ISS for consumption. The remaining peppers are wrapped in foil and sent back to Kennedy Space Center to be studied.
- C. With the help of plant scientists, the astronauts carefully control and monitor the growing conditions in the APH, ultimately harvesting the peppers after a 137-day growth cycle. The astronauts choose 14 of the peppers for consumption and send the rest back to be studied.
- D. Astronauts use specialized tools to plant and maintain genetically modified peppers aboard the ISS. After harvesting the fruit, the astronauts tape the peppers to a board to prevent them from floating around the module.

The question asks for the **best** summary of the astronauts' process for Project Plant Habitat-04.

- A. Incorrect. Although this summary mentions the pepper harvest and photographing and eating the peppers, it leaves out an important part of the process: the team's preparation for growing the peppers and the return to Earth of some harvested peppers for study.
- B. Incorrect. This summary includes the selection of some peppers for consumption and the return of some peppers for research; however, it omits important information about the previous steps required to develop the process for growing peppers.
- C. **CORRECT.** This summary accurately and completely summarizes the astronauts' process for Project Plant Habitat-04: collaborating with plant scientists, controlling the APH conditions, completing the 137-day growth cycle, harvesting the peppers, choosing 14 peppers to eat, and sending the remaining peppers back for study.
- D. Incorrect. This summary focuses on information incidental to the process of growing peppers for Project Plant Habitat-04, mentioning the use of genetically modified peppers and the taping of harvested peppers to a board to keep them from floating, while omitting important steps such as the monitoring of growth and the selection of peppers for consumption and study.

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Read this sentence from paragraph 5.

**Though astronauts can spend upwards of 100 days in space, their on-mission meals come dehydrated and pre-packaged; their vitamins and minerals are isolated in supplements, which lose nutritional value the longer they're stored.**

The sentence contributes to the overall meaning of the excerpt by

- A. indicating that the attempt to grow crops aboard the ISS is an important endeavor.
- B. describing the health effects of spending a significant length of time in space.
- C. revealing why certain kinds of foods are more appealing in space than on Earth.
- D. emphasizing the difficulty of preserving the nutrients in the crops grown in space.

The question asks how a sentence from paragraph 5 contributes to the overall meaning of the excerpt.

- A. **CORRECT.** The sentence explains that astronauts' current food supply consists of dehydrated foods along with vitamin and mineral supplements that lose nutritional value over time. These details support the idea that growing fresh crops in space, as described in the excerpt, is important for astronauts' nutrition during long missions.
- B. Incorrect. While the sentence mentions food and nutrients and astronauts spending "upwards of 100 days in space," it does not describe the overall health effects of being in space for this long. Instead, the sentence focuses on the limitations of the food available to astronauts.
- C. Incorrect. While the sentence does mention that astronauts eat packaged and dehydrated food while in space and that the food and supplements provided are limited in nutritional value, it does not mention the appeal of foods eaten in space compared with foods eaten on Earth.
- D. Incorrect. The sentence explains that supplements can lose their nutritional value over time, but it does not mention whether crops grown in space might also lose nutrients.

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Which statement **best** explains why Lashelle Spencer is a relevant source of information for the excerpt?

- A. She works at NASA's Kennedy Space Center.
- B. She is part of the APH project team.
- C. She is sensitive to the astronauts' need for healthy food in space.
- D. She witnessed how astronauts aboard the APH responded when harvesting their food.

The question asks which statement **best** explains why Lashelle Spencer is a relevant source of information for the excerpt.

- A. Incorrect. While paragraphs 5 and 8 do mention that Lashelle Spencer works at NASA's Kennedy Space Center, that fact does not explain her direct expertise on growing plants in space.
- B. **CORRECT.** In paragraph 4, Spencer is identified as a "plant scientist" at NASA, and paragraph 5 states that she is directly involved with the Advanced Plant Habitat as "part of the project team," making her a relevant source of information for the excerpt's discussion of growing plants in space.
- C. Incorrect. Although the details in paragraph 5 do indicate that Spencer is interested in providing better food choices to astronauts, her empathy toward the astronauts' needs does not make her a relevant source of information for the excerpt.
- D. Incorrect. Paragraph 5 does mention that Spencer helped facilitate the harvest from the Kennedy Space Center, so she likely did witness the astronauts' reactions as they harvested the peppers; however, this inference does not explain Spencer's relevance as a source of information for the excerpt.

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How does the author support the claim in paragraph 4 that the APH is a complex plant growth system?

- A. by indicating how many sensors help control the variables of plant growth
- B. by detailing how the method of growing plants has been adapted to the conditions of space
- C. by explaining the steps required to package and return the plants to Earth
- D. by describing how NASA has spent years experimenting with plants grown in a controlled environment

The question asks how the author supports the claim in paragraph 4 that the APH is a complex plant growth system.

- A. **CORRECT.** The author supports the claim that the APH is a complex plant growth system by stating that it has “more than 180 sensors” that control and monitor temperature, humidity, and carbon dioxide (paragraph 4). These details, along with the description of how astronauts can adjust light and moisture via these sensors, directly illustrate the system’s complexity.
- B. Incorrect. Although paragraph 4 describes some of the APH’s features, such as monitoring “temperature, humidity, and carbon dioxide,” it does not focus on how the key elements of plant growing are adapted to space conditions. The details instead emphasize the number of sensors and the variety of variables they control.
- C. Incorrect. Although paragraph 2 mentions packaging and returning plants to Earth, the process does not directly contribute to the complexity of the APH system of growing plants in space.
- D. Incorrect. While paragraph 3 references NASA’s experimentation “with growing lettuces, brassicas, and zinnias in space” since 2014 and how it relied “on specialized technology,” there is no indication in the paragraph that the APH system existed during the same time period or that the experiments relied on the complexity of a similar system.

Which **two** sentences in paragraphs 5–9 **best** support the idea that the astronauts working in space enjoyed participating in the food-growing experiment?

Select the **two** correct answers.

**5** It's the day after Thanksgiving, and Spencer has been at Kennedy since 5 a.m. to facilitate the peppers' final harvest. As part of the project team, she played a crucial role in preparing the seeds that were sent hurtling into space in June and guiding the astronauts through maintaining the plants in orbit. . . . Though astronauts can spend upwards of 100 days in space, their on-mission meals come dehydrated and pre-packaged; their vitamins and minerals are isolated in supplements, which lose nutritional value the longer they're stored. Spencer's goal is to create the conditions necessary for cultivating healthy plants in space, so those plants can sustain healthy astronauts on long-term missions. Astronaut food is great, she says—"especially the shrimp cocktail. But you're missing that crunch. You're missing that fresh pop of flavor, the green flavor that's not there in that packaged food."

**6** The sensory experience of growing productive crops can also help mitigate the psychological effects of long-term space travel. . . . Spencer says the team cracked open the door of the APH every day to observe their vegetable companions with all the tenderness of home gardeners. When harvest day came, they batted their bounty around the ISS, taking selfies and delighting in watching the fruits pirouetting around the spacecraft. . . .

**7** "We were thinking no heat, so that [the peppers] wouldn't be dangerous, but maybe the astronauts need a little spice in their life," says Paul Bosland, who along with his colleagues at the Chile Pepper Institute genetically engineered the NuMex Española Improved chile pepper seeds grown in Plant Habitat-04. . . .

**8** Working with NASA, Bosland cultivated a variety that could accommodate both the nutritional needs of astronauts as well as the logistics of growing a plant in space. . . .

**9** . . . The experiment is helping gather the data necessary to determine the nutritional content of crops grown in

The question asks which two sentences in paragraphs 5–9 **best** support the idea that the astronauts working in space enjoyed participating in the food-growing experiment.

- Incorrect. Choice 1. “But you’re missing that crunch. You’re missing that fresh pop of flavor, the green flavor that’s not there in that packaged food” is incorrect because it illustrates an opinion on fresh foods of Lashelle Spencer, a plant scientist at NASA’s Kennedy Space Center. Although astronauts are likely to enjoy fresh food, the statement does not describe the enjoyment of the astronauts participating in the experiment.
- CORRECT.** Choice 2. “Spencer says the team cracked open the door of the APH every day to observe their vegetable companions with all the tenderness of home gardeners” is a correct response. The details about the attitude of the astronauts toward the plants and their desire to observe them every day support the idea that they enjoyed participating in the experiment.
- CORRECT.** Choice 3. “When harvest day came, they batted their bounty around the ISS, taking selfies and delighting in watching the fruits pirouetting around the spacecraft” is a correct response. That the astronauts were taking selfies with the peppers and “delighting in watching the fruits pirouetting around the spacecraft” suggests that the astronauts enjoyed being part of the experiment.
- Incorrect. Choice 4. “ ‘We were thinking no heat, so that [the peppers] wouldn’t be dangerous, but maybe the astronauts need a little spice in their life,’ says Paul Bosland” is incorrect because the quotation only gives information about the variables taken into account in the selection of peppers by a scientist at the Chile Pepper Institute. Although the observation suggests that the spicy heat of peppers might be enjoyed by astronauts in space, the sentence does not address the attitude of the astronauts toward the experiment.
- Incorrect. Choice 5. “ ‘I think in an optimal world, a scientist like me would say that they would be growing plants from day one’ ” is incorrect because it emphasizes the opinion of Lashelle Spencer, a plant scientist at NASA’s Kennedy Space Center, regarding the growth of plants in space. Although she suggests growing plants is a good idea, the quotation does not support the idea that the astronauts enjoyed participating in the experiment.

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The description in paragraph 5 of Lashelle Spencer's goal develops a central idea of the excerpt by

- A. illustrating that certain types of packaged foods available in space lack particular flavors.
- B. supporting the notion that spending more than 100 days in space is detrimental to astronauts' health.
- C. offering an example of how the limited selection of on-mission meals becomes less appealing over time.
- D. making an important point about the astronauts' current reliance on supplements for vitamins and minerals.

The question asks how the description of Lashelle Spencer's goal in paragraph 5 develops a central idea of the excerpt.

- A. Incorrect. Although Spencer mentions how astronauts miss certain eating experiences like the "fresh pop" and "green flavor" not found in packaged and dehydrated food, a central idea of the excerpt is that there is a need to provide fresh, healthy foods for long missions, not that food flavor should be improved.
- B. Incorrect. While the excerpt focuses on how spending more than 100 days in space affects nutrition, it does not discuss specific ways in which spending long periods of time in space is detrimental to the health of astronauts.
- C. Incorrect. Although paragraph 5 states that astronauts "can spend upwards of 100 days in space," the excerpt does not develop a central idea that existing meals in space become less appealing over time.
- D. **CORRECT.** The paragraph explains that astronauts currently rely on supplements for vitamins and minerals, which lose their nutritional value over time. Spencer's goal for growing plants in space is to "sustain healthy astronauts," supporting a central idea that astronauts need more nutritionally valuable food to sustain them while in space for long periods of time.

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What is the relationship between the scientists and the astronauts in carrying out the plant-growing experiments?

Move the correct answer to each box.

growing the plants to harvest

documenting the nutritional goals

analyzing the environment

developing the materials and systems

determining the most nutritional plants

Scientists on earth are primarily responsible for

for conducting plant experiments in space, while the astronauts aboard the

International Space Station are responsible for

for the experiment.

The question asks for the two phrases that should be added to the sentence to explain the relationship between the scientists and the astronauts in carrying out the plant-growing experiments.

- CORRECT.** The phrase “growing the plants to harvest” should be added to the second box in the sentence. Paragraphs 1 and 2 of the excerpt show that astronauts aboard the ISS are responsible for tending to the plants in the system and harvesting them after the growth cycle is complete.
  
- Incorrect. The phrase “documenting the nutritional goals” should not be added to either box in the sentence. While the excerpt does mention that the experiment is helping gather data about the nutritional value of the peppers, there is no evidence that either the scientists on Earth or the astronauts aboard the ISS are tasked with documenting specific nutritional goals.
  
- Incorrect. The phrase “analyzing the environment” should not be added to either box in the sentence. Although the experiment requires control of environmental factors like light and moisture, the excerpt does not describe or primarily focus on describing how either the scientists on Earth or the astronauts aboard the ISS are responsible for formally analyzing the environment of the habitat as part of the experiment.
  
- CORRECT.** The phrase “developing the materials and systems” should be added to the first box in the sentence. The excerpt explains that the scientists on Earth create and prepare the systems, seeds, and equipment needed for the plant-growing experiments in space.
  
- Incorrect. The phrase “determining the most nutritional plants” should not be added to either box in the sentence. Although growing nutritious plants is important, the excerpt does not focus on the scientists on Earth or the astronauts aboard the ISS evaluating or selecting plants based on their nutritional value.

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How is the quotation from Lashelle Spencer at the end of paragraph 9 relevant to the discussion of the peppers referred to in paragraph 2?

- A. The quotation indicates that larger batches of peppers need to be grown during future missions and suggests a slight criticism of the astronauts discussed in paragraph 2 for not dedicating more of their time to growing peppers during their mission.
- B. The quotation explains why the 137-day growth cycle mentioned in paragraph 2 is necessary and provides a suggestion on how to grow more peppers during the same growth cycle in future missions.
- C. The quotation helps explain why some of the peppers discussed in paragraph 2 needed to be sent back to Earth and that increasing the overall number of peppers grown in space will be important in future missions.
- D. The quotation provides context for understanding why the peppers discussed in paragraph 2 must be sealed and frozen prior to their return to Earth and suggests how this method might be improved in upcoming missions.

The question asks how the quotation from Lashelle Spencer at the end of paragraph 9 is relevant to the discussion of the peppers referred to in paragraph 2.

- A. Incorrect. The quotation from Spencer in paragraph 9 suggests that astronauts should spend more time on growing larger and more continuous batches of peppers during long missions, but it does not criticize astronauts for discarding plants and ending the experiment after the 137-day growth cycle.
- B. Incorrect. While the quotation from Spencer in paragraph 9 stresses the value of spending more time growing plants in space, it does not provide specific details about the 137-day growth cycle or offer specific methods for producing more peppers within the same time frame.
- C. **CORRECT.** The quotation from Spencer in paragraph 9 is relevant to the discussion of the peppers on the ISS in paragraph 2 because it emphasizes the importance of expanding plant-growing efforts on future space missions. Spencer suggests that rather than ending the experiment after the 137-day growth cycle, astronauts could continually replant and replenish their food supply from the beginning to the end of a long mission.
- D. Incorrect. Although the quotation from Spencer in paragraph 9 conveys the importance of dedicating more time to growing plants in space, it does not explain why the peppers were sealed and frozen, nor does it suggest how this method for preserving them might be improved.

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How is the discussion of the genetic engineering of the peppers consumed on the ISS (paragraphs 7–8) important to the excerpt as a whole?

- A. It provides a detail that helps the reader identify a particular variety of pepper consumed on the ISS.
- B. It indicates that the peppers eaten on the ISS resulted from a collaboration between scientists and astronauts.
- C. It allows the reader to understand how the peppers consumed on the ISS differ from most peppers grown on Earth.
- D. It suggests that the peppers consumed on the ISS are of a type that could be grown in natural conditions.

The question asks how the discussion of the genetic engineering of the peppers consumed on the ISS (paragraphs 7–8) is important to the excerpt as a whole.

- A. Incorrect. Although paragraph 7 names the NuMex Española Improved chile pepper as the variety grown on the ISS, this detail is not further developed and does not play a significant role in the overall focus of the excerpt. The passage emphasizes the process and purpose of developing the pepper rather than the pepper itself.
- B. Incorrect. While paragraph 7 notes that Paul Bosland collaborated with colleagues to develop the seeds for the experiment, this fact alone is not the reason why the discussion of genetic engineering is important to the excerpt. The key point is that the pepper variety in the experiment was specifically modified to meet the needs of both astronauts and space cultivation. Who participated in the development of the peppers is secondary.
- C. **CORRECT.** Paragraph 7 explains how specialists selected a pepper variety and genetically engineered the seeds for the experiment, while paragraph 8 adds that the variety developed also needed to provide astronauts with proper nutrition and be capable of growing in space. These details are important to the excerpt as a whole because they illustrate how the peppers grown on the ISS differ from most peppers cultivated on Earth in both purpose and design.
- D. Incorrect. The details about the genetic engineering of the pepper seeds highlight that the variety was modified to suit specific space-related requirements. However, the excerpt does not discuss whether this type of pepper could be grown in natural conditions on Earth or if doing so is even a goal. Instead, these paragraphs are important because they explain how the pepper was adapted to address astronauts' nutritional needs and the constraints of space farming.

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


- A. Some plants are better adapted for growing in space than on Earth, and focus should be placed on them.
- B. Attempting to grow plants in space the same way they are grown on Earth would not result in success.
- C. Plants grown in space provide better nutritional value than plants grown on Earth.
- D. Successfully growing plants in space is a challenge, so more research must first be completed on plants grown on Earth.

The question asks which statement the author would **most likely** agree with.

- A. Incorrect. Although paragraphs 7 and 8 discuss plants that have been genetically engineered “to accommodate the logistics of growing a plant in space,” the passage does not indicate that the plants are better adapted for growing in space rather than on Earth. Thus, the author is not likely to agree with this statement.
- B. **CORRECT.** In paragraph 3, the author points out that growing plants in space “relies on highly specialized technology over 50 years in the making,” and in paragraph 4, the author explains that the Advanced Plant Habitat requires specialized controls and adaptations for light, moisture, and temperature. The author’s acknowledgment of the special conditions required to grow plants in space indicate that she would agree that growing methods used on Earth are unlikely to succeed in space.
- C. Incorrect. Although paragraph 8 mentions that pepper plants were genetically engineered to meet “the nutritional needs of astronauts,” the passage gives no indication that astronauts have greater nutritional needs in space than they do on Earth or that plants grown in space are engineered to provide better nutrition than their counterparts on Earth. Thus, the author would not be likely to agree with this sentence.
- D. Incorrect. Although the discussion in paragraph 4 of the rigorously controlled conditions indicates that growing plants in space is, indeed, challenging, the article indicates in paragraph 3 that NASA has been experimenting with growing plants in space “since 2014.” Because plant-growing experiments have already been under way in space for a number of years, it is unlikely that NASA or the author would agree that additional experiments on earth are necessary.

**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.

## Passage 7

### New York City and the Hudson Valley Brickmaking Industry

(1) Residents of New York City cannot help but notice that the buildings they are surrounded by are predominantly made of brick. (2) Indeed, one author described the bricks that make up some of New York City's most recognizable landmarks, including the Empire State Building and the arches of the Brooklyn Bridge, as "an inescapable presence." (3) Nearly 65 million people visit New York City every year to see these and other attractions. (4) Why was so much brick used in buildings constructed during the century before World War II? (5) The answer involves an explosion in New York City's population that caused an increase in demand for bricks starting in the mid-1800s and lasting into the 1940s that affected the area more than 100 miles up the Hudson River Valley toward Albany. (6) When demand later declined, the industry would entirely disappear.

(7) New York City's appetite for brick was fueled by surging population and demand for safer building materials. (8) The city's population ballooned from about 313,000 people in 1840 to more than 7 million a century later. (9) Following large, destructive fires in the 1830s, the city had enacted laws requiring the use of fire-resistant materials. (10) Bricks turned out to be an inexpensive way for builders to quickly throw together a lot of structures while keeping building owners and safety inspectors happy.

(11) The brickmaking industry in the Hudson Valley skyrocketed. (12) At the industry's peak, approximately 130 brick factories crammed themselves into a 120-mile stretch along the Hudson River. (13) These factories employed much of the region's population. (14) Population growth in the Hudson River Valley after the mid-1800s was substantial, though percentage increases were smaller than those in New York City. (15) Even though the factories operated only during the summers, their production was immense. (16) Hudson Valley factories shipped over a billion bricks on barges down the river to New York City annually. (17) In fact, *The New York Times* declared, "It's fairly safe to assume that any brick building constructed between 1800 and 1950 includes some form of sediment from the banks of the Hudson River."

(18) History has proven, however, that boom times eventually end. (19) Shifting architectural trends halted not only the Hudson Valley's brickmaking boom, but its entire industry. (20) Starting early in the twentieth century, architects and builders increasingly favored steel, glass, and concrete instead of brick. (21) By 1979, reduced demand for brick had driven every Hudson Valley brick factory out of business.

(22) The Hudson Valley's brickmaking legacy lives on in the architecture of New York City. (23) Throughout the city, famous and ordinary buildings stand as evidence of the remarkable productivity achieved by the Valley's brickmakers. (24) The brick buildings surrounding New Yorkers today serve as a reminder that, as one amateur brick historian put it, "The skyline of New York City used to be the landscape of the Hudson River Valley."

### New York City and the Hudson Valley Brickmaking Industry

(1) Residents of New York City cannot help but notice that the buildings they are surrounded by are predominantly made of brick. (2) Indeed, one author described the bricks that make up some of New York City's most recognizable landmarks, including the Empire State Building and the arches of the Brooklyn Bridge, as "an inescapable presence." (3) Nearly 65 million people visit New York City every year to see these and other attractions. (4) Why was so much brick used in buildings constructed during the century before World War II? (5) The answer involves an explosion in New York City's population that caused an increase in demand for bricks starting in the mid-1800s and lasting into the 1940s that affected the area more than 100 miles up the Hudson River Valley toward Albany. (6) When demand later declined, the industry would entirely disappear.

(7) New York City's appetite for brick was fueled by

Which revision of sentence 10 would **best** maintain the style established in the passage?

- A. Builders turned to brick, which was an affordable material that met safety standards while satisfying the city's large demand for buildings.
- B. Figuring out that bricks were inexpensive, builders used tons of them to satisfy inspectors and the city's desperate construction needs.
- C. Builders favored brick as a pleasingly economical way to meet significant construction demand while following municipal regulations.
- D. Once builders realized that low-cost brick was a law-abiding way to meet the city's building needs, they hardly ever used any other materials.

The question asks for the revision of sentence 10 that would **best** maintain the style established in the passage.

- A. **CORRECT.** This sentence maintains the style established in the passage because it uses clear, precise, and formal language. The phrases “affordable material” and “met safety standards” are accurate and appropriate to the historical and technical context. The word “satisfying” is a precise replacement for “keeping owners happy” from the original sentence, preserving both the meaning and the formal tone of the passage.
- B. Incorrect. Although the sentence conveys the same basic ideas as the passage, the phrases “Figuring out” and “tons of them” are informal and inconsistent with the passage’s formal style. In addition, the word “desperate” introduces a subjective and emotional tone, whereas the passage maintains an objective, fact-based style.
- C. Incorrect. Although this sentence incorporates some formal vocabulary, the phrase “pleasingly economical” introduces an opinion that is inconsistent with formal historical writing. The passage’s style avoids subjective language and focuses on precise, factual descriptions of events and conditions. The phrase “municipal regulations” is also more technical and at the same time less clear and precise than the style established in the passage.
- D. Incorrect. This sentence does not maintain the passage’s formal style because the phrase “law-abiding way” is awkward and informal for a historical description, and the expression “hardly ever” is conversational. The passage uses precise, objective language when describing building practices and material choices, avoiding casual or conversational phrasing.

### New York City and the Hudson Valley Brickmaking Industry

(1) Residents of New York City cannot help but notice that the buildings they are surrounded by are predominantly made of brick. (2) Indeed, one author described the bricks that make up some of New York City's most recognizable landmarks, including the Empire State Building and the arches of the Brooklyn Bridge, as "an inescapable presence." (3) Nearly 65 million people visit New York City every year to see these and other attractions. (4) Why was so much brick used in buildings constructed during the century before World War II? (5) The answer involves an explosion in New York City's population that caused an increase in demand for bricks starting in the mid-1800s and lasting into the 1940s that affected the area more than 100 miles up the Hudson River Valley toward Albany. (6) When demand later declined, the industry would entirely disappear.

(7) New York City's appetite for brick was fueled by

Which **two** sentences present information irrelevant to the ideas in the passage and should be deleted?

Move the **two** correct answers to the box.

**"Nearly 65 million people visit New York City every year to see these and other attractions." (sentence 3)**

**"The city's population ballooned from about 313,000 people in 1840 to more than 7 million a century later." (sentence 8)**

**"Population growth in the Hudson River Valley after the mid-1800s was substantial, though percentage increases were smaller than those in New York City." (sentence 14)**

**"History has proven, however, that boom times eventually end." (sentence 18)**

**"Throughout the city, famous and ordinary buildings stand as evidence of the remarkable productivity achieved by the Valley's brickmakers." (sentence 23)**

**Should Be Deleted**

The question asks which **two** sentences present information irrelevant to the ideas of the passage and should be deleted.

- CORRECT.** “Nearly 65 million people visit New York City every year to see these and other attractions” (sentence 3) presents irrelevant information and should be deleted. While the statistic is interesting, it focuses on tourism, which is not relevant to either the topic of the passage—the growth and decline of the brickmaking industry—or to the ideas in the first paragraph (sentences 1–6), which focus on the prominence of brick in New York City’s buildings.
- Incorrect. “The city’s population ballooned from about 313,000 people in 1840 to more than 7 million a century later” (sentence 8) is relevant to the ideas of the passage and should not be deleted. The numerical details in sentence 8 about the rapid growth in New York City provide relevant evidence that supports a central idea of the passage: that the brickmaking industry of the Hudson River Valley expanded quickly to supply the demands of builders who were, in turn, meeting the demands of a booming population.
- CORRECT.** “Population growth in the Hudson River Valley after the mid 1800s was substantial, though percentage increases were smaller than those in New York City” (sentence 14) presents irrelevant details and should be deleted. The information in sentence 14 comparing population growth rates between the region and New York City are not needed to develop the passage’s central focus on the rise and decline of the Hudson River Valley’s brickmaking industry. The sentence also does not support ideas in the third paragraph (sentences 11–17). Although it mentions that brick factories employed much of the Hudson River Valley population, the productivity of the factories, rather than the Valley’s population, is the topic of the paragraph.
- Incorrect. “History has proven, however, that boom times eventually end” (sentence 18) is relevant to the ideas of the passage and should not be deleted. Sentence 18 effectively introduces the central idea of the passage: the decline of the Hudson River Valley brickmaking industry. The sentence also serves as a clear transition from the third paragraph (sentences 11–17), which provides evidence of the industry’s boom, to the fourth paragraph (sentences 18–21), which provides details about how the industry came to an end.
- Incorrect. “Throughout the city, famous and ordinary buildings stand as evidence of the remarkable productivity achieved by the Valley’s brickmakers” (sentence 23) is relevant to the ideas of the passage and should not be deleted. The mention of famous and ordinary buildings provides an effective link to introductory sentences 1 and 2, strengthening the passage’s conclusion, while also emphasizing the productivity of the Hudson Valley brickmaking industry detailed in the third paragraph (sentences 11–17).

### New York City and the Hudson Valley Brickmaking Industry

(1) Residents of New York City cannot help but notice that the buildings they are surrounded by are predominantly made of brick. (2) Indeed, one author described the bricks that make up some of New York City's most recognizable landmarks, including the Empire State Building and the arches of the Brooklyn Bridge, as "an inescapable presence." (3) Nearly 65 million people visit New York City every year to see these and other attractions. (4) Why was so much brick used in buildings constructed during the century before World War II? (5) The answer involves an explosion in New York City's population that caused an increase in demand for bricks starting in the mid-1800s and lasting into the 1940s that affected the area more than 100 miles up the Hudson River Valley toward Albany. (6) When demand later declined, the industry would entirely disappear.

(7) New York City's appetite for brick was fueled by

Which phrase should be added to the beginning of sentence 11 to provide the **best** transition from the ideas in sentence 10?

- A. While adapting to new uses for brick,
- B. Because the building boom preferred brick,
- C. As a result of New York City's building boom,
- D. Although reliance on brick became the norm,

The question asks which phrase should be added to the beginning of sentence 11 to provide the **best** transition from the ideas in sentence 10.

- A. Incorrect. The phrase “While adapting to new uses for brick” is not the best transition to place at the beginning of sentence 11 because it does not accurately describe the content of sentence 10. Although sentence 10 conveys that brick was a low-cost way for builders to adapt to two new demands—New York City’s need for a lot of new buildings and its recently changed fire-safety laws—neither sentence 10 nor any of the preceding sentences in the second paragraph (sentences 7–10) indicate that builders found any new ways to use bricks. The focus is on the amount of bricks used, rather than any changes in how the builders used them.
- B. Incorrect. Although the phrase “Because the building boom preferred brick” accurately indicates a cause-and-effect relationship between builders using a lot of bricks and the skyrocketing brick production mentioned in sentence 11, it overstates the position of builders described in sentence 10. While sentence 10 says that builders found bricks to be a low-cost way of meeting several needs, it does not say that builders actually preferred to use bricks. In addition, the phrase is awkward and imprecise because a “building boom” cannot literally “prefer” something. Thus, this is not the best transition phrase to add to sentence 11.
- C. **CORRECT.** The transition phrase “As a result of New York City’s building boom” clearly conveys the cause-and-effect relationship between sentence 10, which describes a trend among New York City’s builders to use a lot of bricks to “quickly throw together a lot of structures while keeping building owners and safety inspectors happy,” and sentence 11, which points out a result of the building trend: brickmaking skyrocketed in the nearby Hudson River Valley.
- D. Incorrect. The word “although” in the transition phrase “Although reliance on brick became the norm,” incorrectly indicates an opposing relationship that does not exist between the ideas in sentences 10 and 11. Sentence 10 explains how using a lot of bricks helped New York City’s builders meet the demands of a building boom and new safety regulations. As sentence 16 details, many of the bricks made in the Hudson River Valley were shipped “down the river to New York City.” Thus, it is not logical that the skyrocketing growth of the brickmaking industry in the Hudson River Valley described in sentence 11 happened “although” or despite New York City builders using a lot of brick. Therefore, this transition is not the best one to place at the beginning of sentence 11.

### New York City and the Hudson Valley Brickmaking Industry

(1) Residents of New York City cannot help but notice that the buildings they are surrounded by are predominantly made of brick. (2) Indeed, one author described the bricks that make up some of New York City's most recognizable landmarks, including the Empire State Building and the arches of the Brooklyn Bridge, as "an inescapable presence." (3) Nearly 65 million people visit New York City every year to see these and other attractions. (4) Why was so much brick used in buildings constructed during the century before World War II? (5) The answer involves an explosion in New York City's population that caused an increase in demand for bricks starting in the mid-1800s and lasting into the 1940s that affected the area more than 100 miles up the Hudson River Valley toward Albany. (6) When demand later declined, the industry would entirely disappear.

(7) New York City's appetite for brick was fueled by

Which sentence would **best** follow sentence 20 to support ideas in the fourth paragraph (sentences 18–21)?

- A. At first many people thought the new materials did not look as strong as brick, but eventually the public embraced the trend.
- B. Increasingly expensive shipping and labor costs also drove up the costs for brickmaking factories.
- C. The Flatiron building, completed in 1902, is a notable example of an early steel-framed building.
- D. The more that New York City builders chose to use these materials, the fewer bricks they bought.

The question asks which sentence would **best** follow sentence 20 to support ideas in the fourth paragraph (sentences 18–21).

- A. Incorrect. Although the information in the sentence that consumers eventually “embraced the trend” of building with steel, glass, and concrete suggests that demand for those building materials likely increased, this detail does not clearly link increased use of steel, glass, and concrete to lower demand for brick. Therefore, this sentence would not be the best choice to follow sentence 20 to support the ideas in the fourth paragraph.
- B. Incorrect. This sentence introduces a different cause of the decline of brickmaking—economic costs—rather than providing support or explanation for the idea that the shift to steel, glass, and concrete caused lower demand for brick. Thus, this sentence is not the best one to follow sentence 20.
- C. Incorrect. Although this sentence adds detail related to sentence 20 by giving an example of steel use, it shifts focus toward a specific building rather than the overall trend in material preference. It does not help explain the link between a growing preference for steel, glass, and concrete and declining demand for brick. Therefore, this sentence would not best follow sentence 20 to support the ideas in the fourth paragraph.
- D. **CORRECT.** This sentence supports the ideas in the fourth paragraph. It would best follow sentence 20 because it directly states the cause-and-effect relationship between builders’ preference for steel, glass, and concrete described in sentence 20 and the resulting decline in brick use detailed in sentence 21. It also supports, with a detail about the closing of the last factory, the idea in sentence 18 that the entire Hudson Valley brickmaking industry was ended.

## 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.

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

(1) In 1976, the National Basketball Association (NBA) absorbed several teams of the American Basketball Association (ABA), including the New York Nets, who played in the Long Island area at the time. (2) The owner of the Nets decided to take the team to New Jersey after the team had financial troubles, where the team played for thirty-five seasons. (3) The New Jersey Nets had sixteen playoff appearances, including two appearances in the NBA finals. (4) In 2012, the team changed ownership and returned to New York, where the team now plays under the name the Brooklyn Nets.

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

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

- A. Incorrect. There are no errors in the structure of sentence 1. The clause “who played in the Long Island area at the time” correctly modifies the noun “New York Nets.” “Who” is the correct relative pronoun to serve as the subject of the modifying clause because it refers to people rather than objects or things.
- B. **CORRECT.** Sentence 2 contains a structural error. The current placement of the clause “where the team played for thirty-five seasons” suggests that the clause is modifying the term “financial troubles,” which is illogical. The clause “where the team played for thirty-five seasons” should immediately follow the location, “New Jersey.” A revised version of the sentence might read, “After the team had financial troubles, the owner of the Nets decided to take the team to New Jersey, where the team played for thirty-five seasons.”
- C. Incorrect. There are no errors in the structure of sentence 3. The phrase “including two appearances in the NBA finals” is a nonrestrictive phrase that provides further detail about the team’s “sixteen playoff appearances.” The phrase is set off by a comma because it is not essential to understanding the meaning of the sentence.
- D. Incorrect. There are no errors in the structure of sentence 4. The clause “where the team now plays under the name the Brooklyn Nets” is a nonrestrictive clause that provides further detail about the team after its move back to New York in 2012. The clause is set off by a comma because it is not essential to understanding the meaning of the sentence.

Read these sentences.

- (1) Jordan rehearsed his role for weeks.
- (2) He delivered his lines with ease.
- (3) His performance was met with a burst of applause from the audience.

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

- A. Though Jordan had rehearsed his role for weeks, when he delivered his lines with ease, his performance was met with a burst of applause from the audience.
- B. Jordan had rehearsed his role for weeks, yet he delivered his lines with ease, so his performance was met with a burst of applause from the audience.
- C. Because Jordan had rehearsed his role for weeks, he delivered his lines with ease, and his performance was met with a burst of applause from the audience.
- D. Jordan had rehearsed his role for weeks, so he delivered his lines with ease, but his performance was met with a burst of applause from the audience.

The question asks for the **best** way to combine the sentences to clarify the relationship between ideas.

- A. Incorrect. The conjunction “though” does not make sense with the rest of the sentence since Jordan likely received applause for his performance *because* he rehearsed, not in spite of rehearsing.
- B. Incorrect. The conjunction “yet” is incongruous with the rest of the sentence because Jordan was successful at delivering his lines likely *because* he rehearsed, not in spite of rehearsing.
- C. **CORRECT.** This combination of sentences clarifies the relationship among the ideas in a way that is logical. Jordan was able to deliver his lines with ease and receive applause from the audience because he had rehearsed. “Because” is the best choice for conveying the cause-and-effect relationship between rehearsing and a successful performance.
- D. Incorrect. This combination of sentences correctly expresses the relationship between rehearsing and delivering lines with ease by linking the ideas with the word “so”; however, the word “but” incorrectly links the delivery of lines with applause, suggesting that the burst of applause from the audience was unexpected.

Which pair of revisions need to be made in this paragraph?

(1) Both Italian gelato and American ice cream are delightful treats to have on a hot summer day, but many people wonder: what is the difference between the two? (2) To start with, the butterfat content is much higher in ice cream than it is in gelato, making the Italian treat a wiser decision for people looking to make healthier choices. (3) Additionally, the mixing process, which adds less air to the frozen treat, makes gelato denser than ice cream. (4) Finally, gelato is served 10 to 15 degrees warmer than ice cream, which enhances the texture and flavor of the gelato, and allow it to melt more quickly.

- A. Sentence 1: Delete the colon after **wonder** AND change **is** to **are**.
- B. Sentence 2: Delete the comma after **with** AND change **it is** to **they are**.
- C. Sentence 3: Delete the comma after **process** AND change **makes** to **make**.
- D. Sentence 4: Delete the comma after **gelato** AND change **allow** to **allows**.

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

- A. Incorrect. The revisions introduce new errors. The colon after “wonder” is needed to set off the question “what is the difference between the two?” from the rest of the sentence. In addition, changing the verb “is” to “are” would be incorrect with the use of the singular noun “difference,” which is the subject of the question.
- B. Incorrect. The revisions introduce new errors. The comma following the introductory phrase “To start with” helps with clarity and is needed to separate the phrase from the rest of the sentence. Changing “it is” to “they are” would be incorrect with the use of the singular noun “butterfat content,” which is what the words “it is” refer to in the sentence.
- C. Incorrect. The revisions introduce new errors. The comma following “process” is necessary to set off the nonrestrictive clause “which adds less air to the frozen treat” from the rest of the sentence. This clause is considered a nonrestrictive clause because it provides additional, but not essential, information about the mixing process. Changing the verb “makes” to “make” would be incorrect with the use of the singular noun “mixing process,” which is the subject of the sentence.
- D. **CORRECT.** Deleting the comma after “gelato” would include the clause “and allow it to melt more quickly” with the first part of the clause “which enhances the texture and flavor of the gelato.” The word “and” between the two verb phrases (“enhances the texture and flavor of the gelato” and “allow it to melt more quickly”) indicates that the two verb phrases share a subject, “which” (referring to the act of serving gelato 10 to 15 degrees warmer than ice cream). The two ideas should not be separated by a comma within the clause. The entire clause “which enhances the texture and flavor of the gelato and allow it to melt more quickly” should be separated from the main clause only by the comma after “cream” because the entire clause is a nonrestrictive clause. This clause provides additional, but not essential, information about the purpose of serving gelato at a warmer temperature than ice cream. Changing the verb “allow” to “allows” is also necessary to match the use of the singular pronoun “which.”

**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

What is the prime factorization of 756?

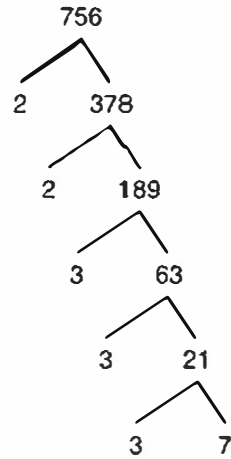
A.  $2^2 \cdot 3^2 \cdot 21$

B.  $2^2 \cdot 3 \cdot 7 \cdot 9$

C.  $2^2 \cdot 7 \cdot 27$

D.  $2^2 \cdot 3^3 \cdot 7$

**(D)** Determine the prime factors of 756 using a factor tree:



The prime factors are 2, 2, 3, 3, 3, and 7, or  $2 \cdot 2 \cdot 3 \cdot 3 \cdot 3 \cdot 7$ , which can be expressed using exponents as  $2^2 \cdot 3^3 \cdot 7$ .

Math Item 2

If  $(8 \div m) + 4 = 20$ , what is the value of  $m$ ?

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

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

C. 2

D. 3

**(B)** The quantity  $(8 \div m)$  means the same as  $\frac{8}{m}$ , so the equation can be rewritten:

$$\left(\frac{8}{m}\right) + 4 = 20$$

Subtract 4 from both sides:

$$\left(\frac{8}{m}\right) = 16$$

Multiply both sides of the equation by  $m$ :

$$8 = 16m$$

Solve for  $m$ :

$$\left(\frac{8}{16}\right) = m$$

Simplify:

$$\left(\frac{8(\div 8)}{16(\div 8)}\right) = \left(\frac{1}{2}\right)$$

$$6x = x - 1,680$$

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

- A. 336
- B. 240
- C. -240
- D. -336

**(D)** Simplify  $6x = x - 1,680$ . First, subtract  $x$  from both sides of the equation. Then, divide both sides by 5.

$$6x - x = x - x - 1,680$$

$$5x = -1,680$$

$$\frac{5x}{5} = \frac{-1,680}{5}$$

$$x = -336$$

Math Item 4

A person buys a used car with a down payment of \$1,200 and makes monthly payments of \$275 for 3 years. What is the total amount the person pays for the car?

- A. \$2,025
- B. \$9,900
- C. \$11,100
- D. \$13,500

**(C)** Determine the total cost of the car by adding the down payment to the total monthly payments over 3 years.

There are 12 months in a year, so multiply (12 months/year  $\times$  3 years) to get a total of 36 months. Determine the total monthly payments by multiplying the monthly payment (\$275)  $\times$  the total number of months (36):

$$275 \times 36 = 9,900$$

Determine the total cost of the car by adding the down payment (\$1,200) to the total monthly payments (\$9,900):







$$9,900 + 1,200 = 11,100$$

The total cost of the car is \$11,100.

Math Item 5

Maya read  $n$  pages for her English homework. Trevor read three times as many pages as Maya. Together, Maya and Trevor read 12 more pages than Ali read. Write an expression that shows how many pages Ali read, in terms of  $n$ .

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

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

**( $4n - 12$ )** Let  $n$  represent the number of pages that Maya read.

Trevor read three times as many pages as Maya: Trevor's pages =  $3n$

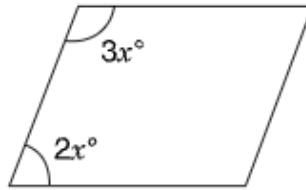
To find how many pages they read together, add Maya's and Trevor's pages:  $n + 3n = 4n$

This means that together, they read  $4n$  pages.

Ali read 12 fewer pages than Maya and Trevor read together. So 12 should be subtracted from the total:

Ali's pages =  $4n - 12$

Math Item 6



In the parallelogram above, what is the value of  $x$ ?

- A. 36
- B. 18
- C. 6
- D. 5

**(A)** In a parallelogram, any two adjacent angles are supplementary, so the sum of the two given angles is equal to  $180^\circ$ .

Write an equation showing that the sum of  $3x^\circ$  and  $2x^\circ$  is equal to  $180^\circ$ :

$$3x + 2x = 180$$

Solve for  $x$ :

$$5x = 180$$

$$\frac{5x}{5} = \frac{180}{5}$$

$$x = 36$$

$$-12 > 6x$$

For what values of  $x$  is the above inequality true?

- A.  $x > -6$
- B.  $x < -6$
- C.  $x < -2$
- D.  $x > -2$

**(C)** Divide to solve for  $x$ :

$$\frac{(-12)}{6} > \frac{6x}{6}$$

$$-2 > x$$

Rewriting  $-2 > x$  with the  $x$  term first requires reversing the inequality symbol in order to keep the meaning “ $x$  is less than  $(-2)$ ”.

$$x < -2$$

Math Item 8

Jordan is helping plan snacks for a school dance. He knows that 0.75 of the students voted for pizza, and he wants to record the same amount using a fraction.

Which fractions are equivalent to the decimal 0.75?

Select the **four** correct answers.

A.  $\frac{3}{4}$

B.  $\frac{15}{20}$

C.  $\frac{75}{100}$

D.  $\frac{2}{5}$

E.  $\frac{6}{8}$

F.  $\frac{8}{10}$

**(A, B, C, E)**

Check each fraction to determine whether it is equal to 0.75 when simplified or converted to a decimal.

$$\frac{3}{4} \rightarrow 3 \div 4 = 0.75$$

This is the most common fraction equal to 0.75.

$$\frac{15}{20} \rightarrow 15 \div 20 = 0.75$$

Simplifies to  $\frac{3}{4}$ , because 15 and 20 can both be divided by 5.

$$\frac{75}{100} \rightarrow 75 \div 100 = 0.75$$

This is a direct match to 0.75 when written as a decimal.

$$\frac{2}{5} \rightarrow 2 \div 5 = 0.4, \text{ which is less than } 0.75.$$

$$\frac{6}{8} \rightarrow 6 \div 8 = 0.75$$

Simplifies to  $\frac{3}{4}$  because both 6 and 8 can be divided by 2.

$$\frac{8}{10} \rightarrow 8 \div 10 = 0.8, \text{ which is more than } 0.75.$$

Math Item 9

Maria rides her bicycle to school at a constant speed of 15 miles per hour. If the distance to school is 6 miles, how many **minutes** will it take Maria to get to school?

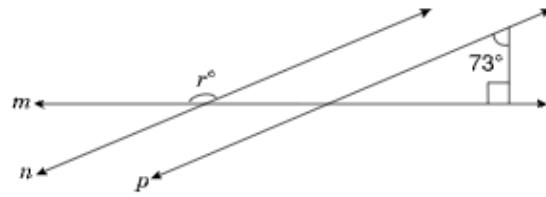
- A. 10
- B. 15
- C. 24
- D. 30

**(C)** Maria's rate of speed is given as 15 miles per hour. Since 1 hour is equivalent to 60 minutes, her rate of speed, in miles per minute, can be determined.

$$\frac{15 \text{ miles}}{1 \text{ hour}} = \frac{15 \text{ miles}}{60 \text{ minutes}} = \frac{1 \text{ mile}}{4 \text{ minutes}}, \text{ or } \frac{1}{4} \text{ mile per minute.}$$

Therefore, it takes Maria 4 minutes to ride 1 mile.

The distance to school is 6 miles, so it will take  $6 \times 4 = 24$  minutes to ride to school.



In the figure above,  $n \parallel p$ . Straight line  $m$  intersects both line  $n$  and line  $p$ . What is the value of  $r$ ?

- A. 17
- B. 117
- C. 163
- D. 173

**(C)** The triangle formed by line  $p$ , line  $m$ , and the line segment connecting the two contains a  $73^\circ$  angle, a right angle ( $90^\circ$ ), and a missing angle measuring  $x^\circ$ . The sum of the interior angles of a triangle is  $180^\circ$ , so begin by finding the value of  $x$ :

$$180^\circ = 73^\circ + 90^\circ + x$$

$$180^\circ = 163^\circ + x$$

$$17^\circ = x$$

Line  $m$  is a straight line, so it has a measure of  $180^\circ$ . The  $17^\circ$  angle from the triangle and the adjacent angle outside the triangle are supplementary, so they have a sum of  $180^\circ$ . Let  $s$  represent the measure of the adjacent angle outside the triangle. The value of  $s$  can be determined by subtracting:

$$s = 180^\circ - 17^\circ$$

$$s = 163^\circ$$

Given that  $n$  and  $p$  are parallel lines and that they have been cut by a transversal, line  $m$ , then corresponding angles are congruent. Angles  $r$  and  $s$  are corresponding angles, so the value of  $r$  is congruent to the value of  $s$ , which is  $163^\circ$ .

Math Item 11

Allison has 5 stamp albums with 576 stamps in each album. If she transfers her stamp collection to 6 albums, each holding 378 stamps, how many stamps will be left over?

- A. 198
- B. 612
- C. 620
- D. 632

**(B)** Determine the total number of stamps in 5 albums holding 576 stamps:

$$5 \times 576 = 2,880$$

Determine the total number of stamps in 6 albums holding 378 stamps:

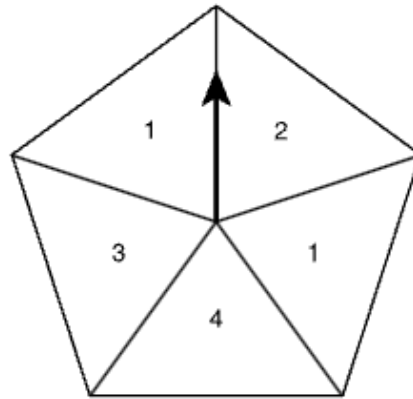
$$6 \times 378 = 2,268$$

Subtract 2,268 from 2,880 to find the number of stamps that will be left over:

$$2,880 - 2,268 = 612$$

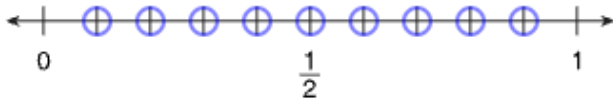
Math Item 12

A spinner has 5 congruent sections labeled as shown. One side of a fair coin is heads, and the other side is tails.



The spinner is spun one time, and the coin is flipped. What is the probability that the spinner lands on 1 and the coin lands on tails?

Select the place on the number line that represents the probability.



$$0.2 \left( \frac{2}{10} \right)$$

The spinner has five equal-sized sections. Two of the sections are labeled with a 1. So, the probability of landing on a 1 is two out of five, or  $\frac{2}{5}$ .

A coin has two sides, one heads and one tails. So, the probability of landing on tails is one out of two, or  $\frac{1}{2}$ .

The compound probability of the spinner landing on a 1 **and** the coin landing on tails can be calculated by multiplying  $\frac{2}{5}$  and  $\frac{1}{2}$  as shown:

$$\frac{2}{5} \cdot \frac{1}{2} = \frac{2}{10} = 0.2$$

Math Item 13

Start with the number 135.28 and perform the following steps in order:

- Step 1: Multiply by 10.
- Step 2: Add 0.5 to the result of Step 1.
- Step 3: Drop the digits after the decimal point.
- Step 4: Divide by 10.

What is the result?

- A. 13.5
- B. 135
- C. 135.2
- D. 135.3

**(D)** Begin by multiplying 135.28 by 10:

$$135.28 \times 10 = 1,352.8$$

Add 0.5:

$$1,352.8 + 0.5 = 1,353.3$$

Drop the digits after the decimal point, so 1,353.3 becomes 1,353.

Divide by 10:

$$1,353 \div 10 = 135.3$$

Math Item 14

If  $x = -2$ , what is the value of  $|x + x^2 + x^3| - |x + 2x + 3x|$ ?

- A.  $-18$
- B.  $-6$
- C.  $-2$
- D.  $2$

**(B)** Substitute  $-2$  for each value of  $x$  in the expression:

$$|(-2) + (-2)^2 + (-2)^3|$$

minus

$$|(-2) + 2(-2) + 3(-2)|$$

Evaluate the terms involving exponents:

$$|(-2) + 4 + (-8)|$$

minus

$$|(-2) + 2(-2) + 3(-2)|$$

Evaluate the terms involving multiplication:

$$|(-2) + 4 + (-8)|$$

minus

$$|(-2) + (-4) + (-6)|$$

Simplify the expression:

$$|2 + (-8)| - |(-2) + (-10)|$$

$$|-6| - |-12|$$

The absolute value of  $(-6)$  is 6, and the absolute value of  $(-12)$  is 12, so  $|-6| - |-12|$  is the equivalent of subtracting 12 from 6 :

$$6 - 12 = (-6)$$

Math Item 15

A grocery store sells 1-gallon containers of milk for \$3.99. The store also sells orange juice in a 6-pack of 5.5-fluid-ounce bottles for \$1.79. Suppose the store wants to sell its orange juice in gallon containers instead. To the nearest dollar, how much more would a gallon of orange juice cost than a gallon of milk?

Enter your answer in the space.

**(3)** To determine the cost of a gallon of orange juice, begin by finding the total number of ounces in the 6-pack of bottles:

$$5.5 \text{ oz} \times 6 = 33 \text{ oz}$$

So, 33 oz of orange juice costs \$1.79.

There are 128 oz in 1 gallon. Set up a proportion using the \$1.79 cost per 33 oz of orange juice and the unknown cost ( $x$ ) per 1 gallon of orange juice:

$$\frac{33 \text{ oz}}{\$1.79} = \frac{128 \text{ oz}}{x}$$

Cross multiply to solve for  $x$  in the proportion:

$$(33) \times (x) = (\$1.79) \times (128)$$

$$33x = \$229.12$$

$$x = \$6.94$$

So, the orange juice costs \$6.94 per gallon, and the milk costs \$3.99 per gallon.

Subtract the cost per gallon of milk from the cost per gallon of orange juice.

$$\$6.94 - \$3.99 = \$2.95$$

Round the difference to the nearest dollar.

$$\$2.95 \text{ rounds to } \$3.$$

Math Item 16

$$\frac{3+(-3)}{3-(-3)} =$$

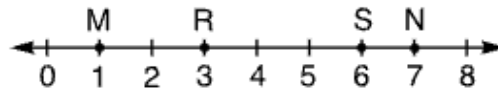
- A.  $-1$
- B.  $0$
- C.  $\frac{1}{6}$
- D.  $1$

**(B)** Simplify the expression.

$3 + (-3)$  is the equivalent of subtracting 3 from 3, and  $3 - (-3)$  is equivalent of adding 3 to 3:

$$\frac{3+(-3)}{3-(-3)} = \frac{3-3}{3+3} = \frac{0}{6}$$

The zero property of division states that zero divided by any number equals zero, so  $\frac{0}{6} = 0$ .



What is the distance between the midpoints of  $\overline{MN}$  and  $\overline{RS}$ ?

- A.  $\frac{1}{2}$  unit
- B. 1 unit
- C.  $1\frac{1}{2}$  units
- D. 2 units

**(A)**  $\overline{MN}$  begins at 1 and ends at 7. Determine the length of  $\overline{MN}$  :

$$7 - 1 = 6$$

The midpoint of a line segment is located exactly halfway between the two endpoints. Since  $\overline{MN}$  is 6 units in length, the two endpoints are 6 units apart. Determine the location of the midpoint, in relation to each endpoint, by dividing 6 by 2:

$$6 \div 2 = 3$$

The location of the midpoint of  $\overline{MN}$  is 3 units from either endpoint. Find the midpoint by either adding 3 to the location of M (1) or subtracting 3 from the location of N (7):

$$1 + 3 = 4$$

$$7 - 3 = 4$$

The midpoint of  $\overline{MN}$  is located at 4.

$\overline{RS}$  begins at 3 and ends at 6. Determine the length of  $\overline{RS}$  :

$$6 - 3 = 3$$

Since  $\overline{RS}$  is 3 units in length, the two endpoints are 3 units apart. Determine the location of the midpoint, in relation to each endpoint, by dividing 3 by 2:

$$3 \div 2 = 1.5$$

The location of the midpoint of  $\overline{RS}$  is 1.5 units from either endpoint. Find the midpoint by either adding 1.5 to the location of R (3) or subtracting 1.5 from the location of S (6):

$$3 + 1.5 = 4.5$$

$$6 - 1.5 = 4.5$$

The midpoint of  $\overline{RS}$  is located at 4.5.

Determine the distance between the two midpoints by subtracting:

$$4.5 - 4 = 0.5$$

0.5 is equivalent to  $\frac{1}{2}$ , making the distance between the two midpoints  $\frac{1}{2}$  unit.

I.  $s - t$

II.  $st^2$

III.  $s^t$

If  $s$  is a positive integer and  $t$  is a negative integer, which of the above expressions **must** be a positive number?

- A. II only
- B. I and II only
- C. II and III only
- D. I, II, and III

**(D)** Each of the three expressions must be considered:

Expression I:  $s - t$ , where  $s$  is a positive integer and  $t$  is a negative integer:

Subtracting a negative integer is the equivalent of adding a positive integer, so  $s - (-t)$  is equivalent to finding the value of  $s + t$ , which must result in a positive number.

Expression II:  $st^2$ , where  $s$  is a positive integer and  $t$  is a negative integer:

Squaring a negative integer results in a positive integer, so  $s(-t)^2$  is equivalent to finding the value of  $st^2$ , which must result in a positive number.

Expression III:  $s^t$ . where  $s$  is a positive integer and  $t$  is a negative integer:

A negative exponent results in the reciprocal of the same exponential expression, so  $s^{(-t)}$  is equivalent to finding the value of  $\frac{1}{s^t}$ , which must result in a positive number.

Therefore, Expressions I, II, and III must all result in a positive number.

Math Item 19

What is the value of  $\left(-\frac{3}{4}\right)\left(-\frac{2}{5}\right)$ ?

- A.  $-\frac{7}{20}$
- B.  $-\frac{3}{10}$
- C.  $\frac{3}{10}$
- D.  $\frac{7}{20}$

**(C)** Evaluate the expression by multiplying the terms in the numerator and the terms in the denominator. The product of two negative values is positive:

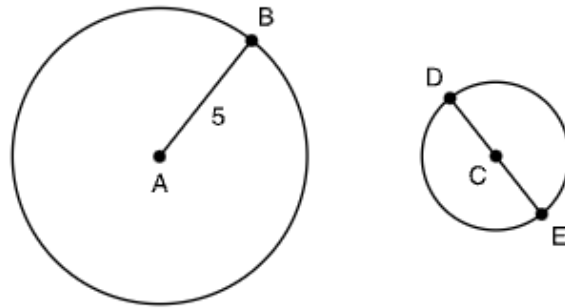
$$\frac{(-3) \times (-2)}{4 \times 5} = \frac{6}{20}$$

Simplify the result:

$$\frac{6 \div 2}{20 \div 2} = \frac{3}{10}$$

Math Item 20

Two circles, with centers at A and C, are shown. Line segment AB is congruent to line segment DE.



Determine the area,  $A$ , and the circumference,  $C$ , of each circle to complete the table.

Select one answer in each row.

	Circle A	Circle C	Neither
$A = 25\pi$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
$C = 5\pi$	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

$$A = 25\pi: \text{ Circle A}$$

$$C = 5\pi: \text{ Circle C}$$

As shown in the illustration, AB (the radius of Circle A) is 5 units in length. Since DE (the diameter of Circle C) is congruent to AB, we know it is also 5 units in length.

Circle A:

$$A = \pi r^2$$

$$A = 25\pi$$

$$r = 5$$

We know the radius of Circle A is 5 so the answer to row 1 is A.

Circle C:

$$C = \pi \cdot d$$

$$C = 5\pi$$

We have to look for the circle with a diameter of 5. That is circle C.

Math Item 21

In a fruit basket, the ratio of apples to oranges is the same as the ratio of cherries to walnuts. If there are 6 oranges, 16 cherries, and 48 walnuts, how many apples are there?

- A. 2
- B. 3
- C. 18
- D. 38

**(A)** The ratios of the items are equal, so they can be expressed using a proportion.

Let  $a$  represent the number of apples,  $o$  the number of oranges,  $c$  the number of cherries, and  $w$  the number of walnuts. Write a proportion showing apples:oranges is equal to cherries:walnuts:

$$\frac{a}{o} = \frac{c}{w}$$

Substitute the given values for oranges (6), cherries (16), and walnuts (48):

$$\frac{a}{6} = \frac{16}{48}$$

Cross multiply to form an equation to solve for the number of apples ( $a$ ):

$$(a \times 48) = (16 \times 6)$$

Solve for the value of  $a$ :

$$48a = 96$$

$$a = 2$$

Math Item 22

During a hiking trip, a group of students recorded the elevation (in feet) at several points along the trail:

$-120$  ft,  $-80$  ft,  $0$  ft,  $45$  ft,  $-30$  ft,  $90$  ft

What is the difference between the highest and lowest elevations recorded on the trail?

Enter your answer in the space.

**(210)** Determine the difference between the highest and lowest elevations:

Determine the highest elevation:

Of  $-120$ ,  $-80$ ,  $0$ ,  $45$ ,  $-30$ , and  $90$ , the greatest value is  $90$  because its location is farthest to the right on a number line.

Highest elevation =  $90$  ft

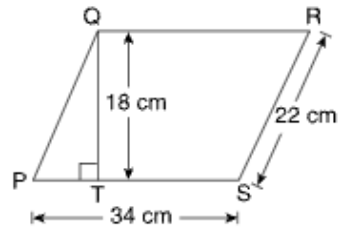
Determine the lowest elevation:

Of  $-120$ ,  $-80$ ,  $0$ ,  $45$ ,  $-30$ , and  $90$ , the lowest value is  $-120$  because its location is farthest to the left on a number line.

Lowest elevation =  $-120$  ft

Determine the difference between the two elevations:

$$90 \text{ ft} - (-120) \text{ ft} = 90 \text{ ft} + 120 \text{ ft} = 210 \text{ ft}$$



On parallelogram PQRS above, the length of  $\overline{QT}$  is 18 centimeters. What is the area of the parallelogram?

- A. 112 sq cm
- B. 396 sq cm
- C. 612 sq cm
- D. 748 sq cm

**(C)** PQRS is a parallelogram in which PS is a base and QT is an altitude. The base is 34 cm in length, and the height is the length of the altitude, so the height is 18 cm.

To determine the area of a parallelogram, multiply the base  $\times$  the height:

$$34 \text{ cm} \times 18 \text{ cm} = 612 \text{ cm}^2$$

Math Item 24

In a showing of an artist's works, the ratio of the number of paintings, drawings, and photographs shown is 3:5:4, respectively. If the number of drawings shown was 45, what is the total number of photographs and paintings that were shown?

- A. 36
- B. 63
- C. 84
- D. 108

**(B)** The ratio of paintings to drawings to photographs is 3 : 5 : 4.

First, determine the number of actual paintings and photographs.

Since the number of actual drawings is 45, each ratio is multiplied by 9, since  $5 \times 9 = 45$ .

Type	Ratio	Actual Number
Paintings	3	27
Drawings	5	45
Photographs	4	36

Then, add the actual number of paintings and photographs.

$$27 + 36 = 63$$

Math Item 25

For each  $\frac{3}{8}$  foot of curtain width,  $\frac{5}{6}$  yard of fabric is needed to make ruffles. How many yards of fabric are needed per foot of curtain width?

- A.  $\frac{5}{16}$  yd
- B.  $\frac{29}{24}$  yd
- C.  $\frac{20}{9}$  yd
- D.  $\frac{7}{2}$  yd

**(C)** It takes  $\frac{5}{6}$  yard of fabric to make  $\frac{3}{8}$  foot of curtain width.

To find the ratio of 1 foot of curtain width to  $\frac{3}{8}$  foot of curtain width  $\left(1:\frac{3}{8}\right)$ , divide.

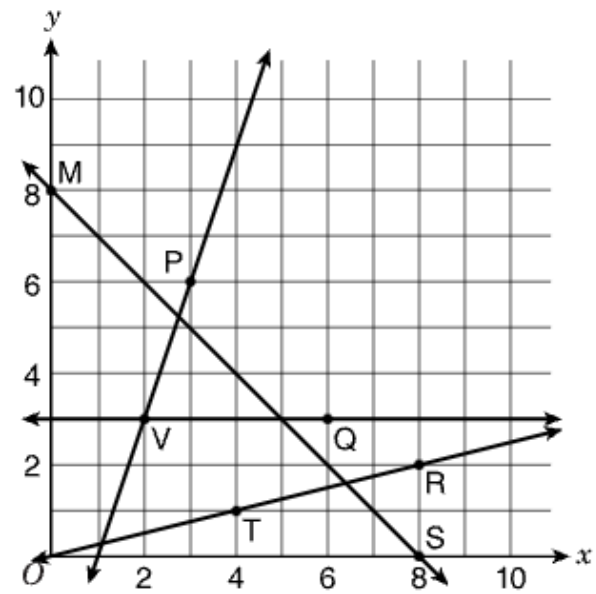
$$1 \div \frac{3}{8} = 1 \times \frac{8}{3} = \frac{8}{3}$$

So the amount of fabric needed for 1 foot of curtain width is  $\frac{8}{3}$  times the amount needed for  $\frac{3}{8}$  foot of curtain width.

$$\frac{8}{3} \times \frac{5}{6} = \frac{40}{18}$$

$$\frac{40 \div 2}{18 \div 2} = \frac{20}{9}$$

The amount of fabric needed for 1 foot of curtain width is  $\frac{20}{9}$  yards.



Which straight line is the graph of a proportional relationship?

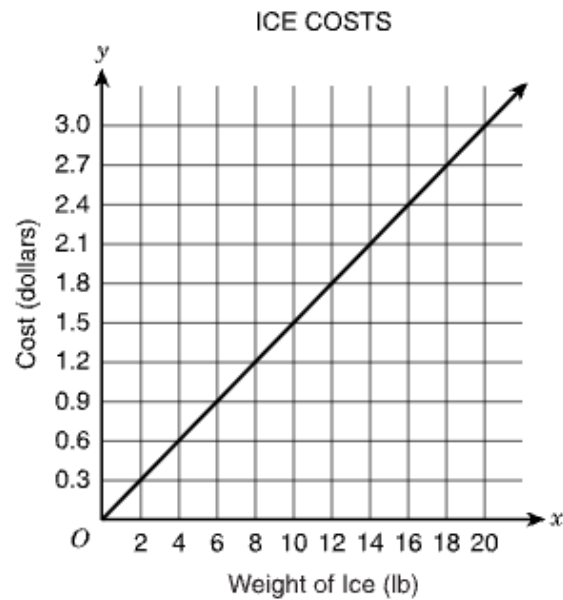
- A.  $\overleftrightarrow{MS}$
- B.  $\overleftrightarrow{VP}$
- C.  $\overleftrightarrow{VQ}$
- D.  $\overleftrightarrow{TR}$

**(D)** The graph of any proportional line must intersect the origin,  $(0, 0)$ .

The **only** line on the coordinate plane that contains  $(0, 0)$  is  $\overleftrightarrow{TR}$ .

Both point  $T(1, 4)$  and point  $R(2, 8)$  have a  $y$ -value that is 4 times the  $x$ -value, and every point on the line fits the proportional equation  $y = 4x$ .

When  $x = 0$ ,  $y = 4(0)$ . So the line contains the origin,  $(0, 0)$ .



Some friends are buying bags of ice for a picnic. The graph shows the cost of the ice, in dollars, in relation to the weight, in pounds. Which statement about a point on the graph is true?

- A. The point (20, 3) means that 3 lbs of ice costs \$20.00.
- B. The point (1, 0.15) means that 1 bag of ice costs \$0.15.
- C. The point (10, 1.5) means that 10 lbs of ice costs \$1.50.
- D. The point (0, 0) means that 0 lbs of ice will be needed if 0 people go to the picnic.

**(C)** The  $x$ -axis represents the weight, in pounds (lbs), of ice purchased, and the  $y$ -axis represents the cost of the ice, in dollars. The  $x$ -value in the point  $(10, 1.5)$  represents 10 lbs of ice, and the  $y$ -value represents 1.5 dollars, or \$1.50. Therefore, the cost of 10 lbs of ice is \$1.50.

---

## Math Item 28

If  $\frac{z+3w}{4} = 5w$ , what is the value of  $z$  in terms of  $w$ ?

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

$z = $ <input type="text"/>							
1	2	3	4	5	w		
6	7	8	9	0	+	-	$\sqrt{\quad}$
%	-	.	$\frac{\square}{\square}$	$\frac{\square\square}{\square}$	▪	÷	$\sqrt[n]{\quad}$
	$\square^\square$	( )	$\leq$	<	=	>	$\geq$
$\pi$							

$$(z = 17w)$$

The goal is to isolate the variable  $z$  by using inverse operations.

First, multiply both sides by 4:

$$\frac{z+3w}{4} = 5w$$

$$z + 3w = 20w$$

Then subtract  $3w$  from both sides:

$$z = 17w$$

A smoothie shop uses a consistent ratio of fruit to yogurt in its recipes. The table shows the proportional relationship between the number of cups of fruit ( $x$ ) and the number of cups of yogurt ( $y$ ) in different smoothie batches.

SMOOTHIE RECIPE

Cups of Fruit $x$	Cups of Yogurt $y$
6	1.5
8	2.0
10	2.5
12	3.0

What is the constant of proportionality of the number of cups of yogurt to the number of cups of fruit?

Enter your answer in the space.

**(0.25)** To find  $p$ , the constant of proportionality of the number of cups of yogurt,  $y$ , to the number of cups of fruit,  $x$ , use the equation  $y = px$ .

The table shows that there are 1.5 cups of yogurt for 6 cups of fruit.

$$1.5 = 6p$$

$$\frac{1.5}{6} = \frac{6p}{6}$$

$$\frac{1}{4} = 0.25 = p$$

The constant of proportionality is 0.25.

Math Item 30

Out of 2,000 high school seniors, 191 were enrolled in the Honor Society. What percentage of the entire group of 2,000 seniors were in the Honor Society?

- A. 0.955%
- B. 1.91%
- C. 9.55%
- D. 19.1%

**(C)** The fraction  $\frac{191}{2000}$  represents the 191 high school seniors out of 2,000 enrolled in the Honor Society.

To determine the percentage, convert the fraction to a decimal. Then, rewrite the decimal as a percentage.

$$\frac{191}{2000} = 0.0955 = 9.55\%$$

---

NUMBER OF VISITORS  
TO BROOKSIDE ZOO

	<b>Male</b>	<b>Female</b>
Children	360	340
Adults	210	290

The table above shows the number of people who visited Brookside Zoo in one day. The largest of the four groups made up what percentage of all visitors on that day?

- A. 30%
- B. 28%
- C. 24%
- D. 17%

**(A)** First, determine the total number of visitors.

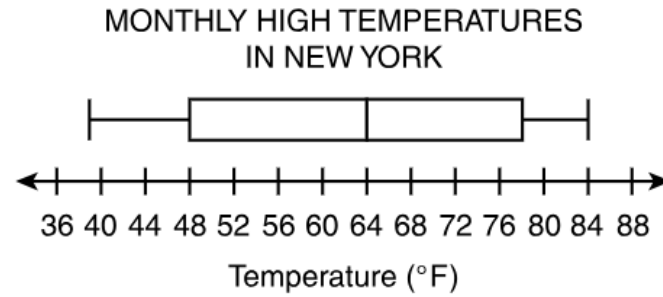
$$360 + 340 + 210 + 290 = 1200$$

The largest group is 360 (Male Children).

Find the percent that represents  $\frac{360}{1200}$ .

$$\frac{360}{1200} \times \frac{100}{1} \% = \frac{360}{12} \times \frac{1}{1} \% = 30\%$$

---



The box plot shows the average monthly high temperatures in New York City for 12 months. What is the difference between the range and the interquartile range of the temperature data?

Enter your answer in the space.

**(15)** Determine the range by subtracting the minimum value on the box plot from the maximum value on the box plot:

Maximum value =  $84^{\circ}\text{ F}$ , Minimum value =  $39^{\circ}\text{ F}$

$$84^{\circ}\text{ F} - 39^{\circ}\text{ F} = 45^{\circ}\text{ F}$$

Determine the interquartile range by subtracting the lower quartile value on the box plot from the upper quartile value on the box plot:

Upper Quartile Value =  $78^{\circ}\text{ F}$ , Lower Quartile Value =  $48^{\circ}\text{ F}$

$$78^{\circ}\text{ F} - 48^{\circ}\text{ F} = 30^{\circ}\text{ F}$$

Determine the difference between the range ( $45^{\circ}\text{ F}$ ) and the interquartile range ( $30^{\circ}\text{ F}$ ):

$$45^{\circ}\text{ F} - 30^{\circ}\text{ F} = 15^{\circ}\text{ F}$$

Math Item 33

A bag contains 40 tiles that are either red, green, or blue. A tile is selected at random, the color is recorded, and the tile is put back in the bag. This process is carried out 120 times, and 18 of those times a red tile is selected. Based on the information, what is the most likely number of red tiles in the bag?

- A. 6
- B. 15
- C. 18
- D. 30

**(A)** First, determine what fraction of the sample were red tiles, given 18 of the 120 tiles drawn were red.

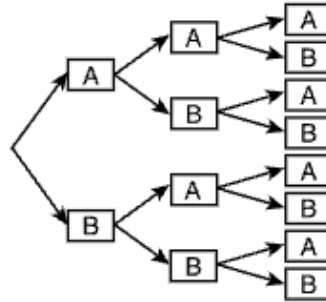
$$\frac{18 \div 6}{120 \div 6} = \frac{3}{20}$$

To predict how many of the actual 40 tiles in the bag are red, multiply 40 by the fraction of red tiles in the sample.

$$\frac{3}{20} (40) = \frac{120}{20} = 6$$

Math Item 34

A teacher will randomly select 3 students to be on a school committee. He will choose either a student from Classroom A or a student from Classroom B with each selection. This tree diagram shows the selection possibilities.



What is the probability that the teacher will select 2 students from Classroom A and 1 student from Classroom B (in any order) for the committee?

- A.  $\frac{1}{8}$
- B.  $\frac{3}{8}$
- C.  $\frac{1}{2}$
- D.  $\frac{3}{4}$

**(B)** The tree diagram shows that each of the 3 randomly selected students is from Classroom A or Classroom B. So the first chosen is either A or B, represented by the left column of the diagram.

The second student is either A or B, so if the first is A, the first two chosen will be either AA or AB. If the first is B, then the first two chosen will be either BA or BB, represented by the middle column.

The third student is either A or B, so if the first 2 were AA, the group of 3 would be either AAA or AAB. These outcomes are represented by the top two boxes of the right column. This pattern is followed so that 8 distinct outcomes can be visualized in order:

AAA, AAB, ABA, ABB, BAA, BAB, BBA, BBB

Since the order does not matter, there are 3 groups made up of 2 students from Classroom A and 1 student from Classroom B: AAB, ABA, and BAA.

Out of 8 possible outcomes, 3 outcomes have 2 students from Classroom A and 1 student from Classroom B. Therefore, the probability is 3 out of 8, or  $\frac{3}{8}$ .

If  $4(a + 2b) = 28b + 2a$ , what is the value of  $a$  in terms of  $b$ ?

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

$a =$

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

**( $a = 10b$ )** To find the value of  $a$  in terms of  $b$ , solve  $4(a + 2b) = 28b + 2a$  for  $a$ . Begin by distributing 4 on the left side of the equation:

$$(4 \times a) + (4 \times 2b) = 28b + 2a$$

$$4a + 8b = 28b + 2a$$

Then, get the  $a$  terms on one side and the  $b$  terms on the other:

$$4a - 2a = 28b - 8b$$

Solve for the value of  $a$  in terms of  $b$  by combining like terms and then dividing each side by 2:

$$2a = 20b$$

$$a = 10b$$

Math Item 36

A deck of 52 playing cards contains 13 hearts. Sara has 12 cards from this deck in her hand, 3 of which are hearts. The other cards remain in the deck. What is the probability that a card drawn at random from the remainder of the deck will be a heart?

- A.  $\frac{1}{10}$
- B.  $\frac{1}{4}$
- C.  $\frac{3}{13}$
- D.  $\frac{1}{3}$

**(B)** First, determine the number of cards in the remaining deck:

$$52 - 12 = 40$$

Next, determine the number of hearts left in the remaining deck:

$$13 - 3 = 10$$

Last, determine the probability of drawing a heart from the remaining deck:

$$\frac{10 \text{ hearts remaining}}{40 \text{ total cards remaining}} = \frac{10}{40} = \frac{1}{4}$$

The table shows the probability of randomly picking each flavor of candy from a bowl.

PICKING CANDY FROM  
A BOWL

<b>Flavor</b>	<b>Probability</b>
Butterscotch	0.57
Lemon	0.095
Maple	0.125
Strawberry	0.21

Which flavor is most likely to be randomly picked?

- A. butterscotch
- B. lemon
- C. maple
- D. strawberry

**(A)** The flavor most likely to be picked at random is butterscotch, because its probability is the greatest of the probabilities in the list. More than half the candies in the bowl are butterscotch.

This formula can be used to determine  $p$ , the number of pages that will be in a book that contains  $w$  words, with an average of  $r$  words per page, and  $f$  extra pages in the front for the title and publishing information.

$$p = \frac{1}{r}w + f$$

If the formula is solved for  $w$ , it can be used to find the number of words in a book with  $p$  pages. What will the formula be if it is solved for  $w$ ?

- A.  $w = r(p - f)$
- B.  $w = \frac{1}{r}p + f$
- C.  $w = f + rp$
- D.  $w = r + p + f$

**(A)** Apply the properties of equality to solve for  $w$ .

$$p = \frac{1}{r}w + f$$

Subtract  $f$  from both sides of the equation.

$$p - f = \frac{1}{r}w$$

Multiply both sides by  $r$ .

$$r(p - f) = r\left(\frac{1}{r}w\right)$$

$$r(p - f) = w$$

$$w = r(p - f)$$

Math Item 39

A shipment contains 170 small boxes of medical supplies. In a random sample of 20 of these boxes, 8 have damage and the others are undamaged. Based on this sample, what is the best prediction of the number of undamaged boxes in the shipment, **not** including the boxes in the random sample?

- A. 60
- B. 68
- C. 90
- D. 102

**(C)** Determine the fraction of undamaged boxes in the sample, given 8 of the 20 boxes are damaged.

$$\frac{20-8}{20} = \frac{12}{20} = \frac{3}{5} \text{ or } 0.6$$

Subtract the number of boxes in the sample from 170.

$$170 - 20 = 150$$

Basing the prediction of undamaged boxes on the sample, multiply the number of boxes **not** in the sample by the fraction of undamaged boxes in the sample.

$$150 \times 0.6 = 90$$

Math Item 40

In basketball, a player can earn 1 point for making a free throw and 2 points for making another basket. Marcus makes a mean of 8 free throws per game, and he scores a total of at least 25 points per game. The inequality below shows this relationship, where  $b$  represents the number of 2-point baskets Marcus makes.

$$2b + 8 \geq 25$$

What is the number of 2-point baskets Marcus needs to make if he wants to score at **least** his minimum total points for a game and make his mean number of free throws?

- A.  $b \leq 8$
- B.  $b \geq 9$
- C.  $b \geq 16$
- D.  $b \leq 25$

**(B)** Solve the inequality  $2b + 8 \geq 25$ .

$$2b + 8 - 8 \geq 25 - 8$$

$$2b \geq 17$$

$$\frac{2b}{2} \geq \frac{17}{2}$$

$$b \geq 8.5$$

Since the number of baskets made must be a whole number, the fewest 2-point baskets,  $b$ , he must make is 9.

Math Item 41

Elijah is at the school bookstore. He wants to buy a water bottle for \$12.50 and some notebooks that cost \$4.75 each. He has at most \$35.00 to spend. Write an inequality that represents the number of notebooks,  $n$ , Elijah can purchase.

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

<input type="text"/>							
1	2	3	4	5	$n$		
6	7	8	9	0	+	-	$\sqrt{\quad}$
%	-	.	$\frac{\square}{\square}$	$\frac{\square\square}{\square\square}$	$\cdot$	$\div$	$\sqrt[n]{\quad}$
	$\square^\square$	( )	$\leq$	$<$	$=$	$>$	$\geq$
$\pi$							

$$(12.50 + 4.75n \leq 35.00)$$

The question uses the phrase “at most,” which means “less than or equal to” ( $\leq$ ).

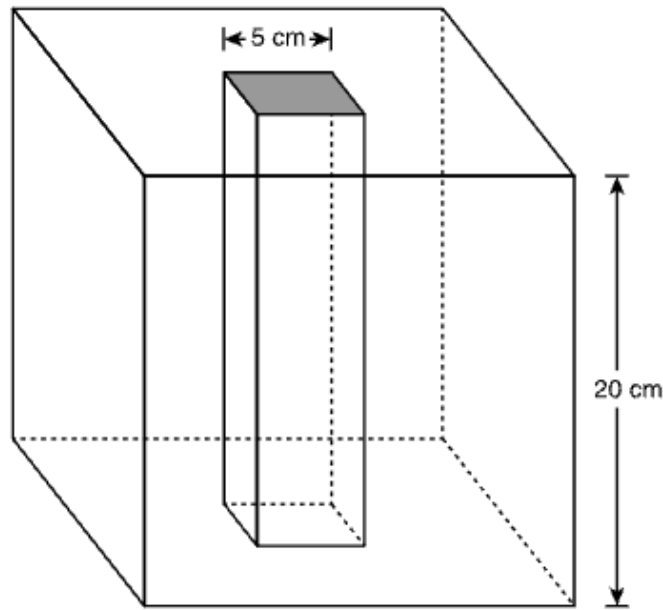
Since notebooks cost \$4.75 each and Elijah will buy  $n$  notebooks, the total cost just for the notebooks is found by multiplying \$4.75 by  $n$ , or  $4.75n$ .

Combining the cost of a water bottle (\$12.50) with the cost of  $n$  notebooks, the inequality is  $12.50 + 4.75n \leq 35.00$ .

This may also be written as  $4.75n + 12.50 \leq 35.00$ .

Math Item 42

Tariq is making a clay block in the shape of a cube with a side length of 20 cm. He hollows out the center by removing clay to form a rectangular prism-shaped hole with a base of 5 cm · 5 cm and a height of 20 cm.



What is the volume, in cubic centimeters, of the block after the clay is removed from the center?

Enter your answer in the space.

**(7,500 cm<sup>3</sup>)** First, find the volume of the cube using the formula  $V = lwh$ .

The length, width, and height of the cube are each equal to 20 cm.

$$V_c = 20 \text{ cm} \times 20 \text{ cm} \times 20 \text{ cm} = 8,000 \text{ cm}^3$$

Next, find the volume of the cut-out square prism, with equal length and width of 5 cm and height of 20 cm.

$$V_p = 5 \text{ cm} \times 5 \text{ cm} \times 20 \text{ cm} = 500 \text{ cm}^3$$

Finally, subtract the volume of the prism from the volume of the cube.

$$8,000 \text{ cm}^3 - 500 \text{ cm}^3 = 7,500 \text{ cm}^3$$

Math Item 43

A softball player bought bottles of water for her team to have at practice. The total number of bottles she bought,  $b$ , is proportional to  $n$ , the number of players at practice. Which equation represents the relationship between  $b$  and  $n$ ? The constant of proportionality is  $p$ .

- A.  $b = pn$
- B.  $b = p + n$
- C.  $b + n = p$
- D.  $b + n + p = 1$

**(A)** In this context, the constant of proportionality,  $p$ , represents the relationship between  $b$ , the number of bottles of water, and  $n$ , the number of players on the team.

The number of bottles of water is the product of the constant of proportionality and the number of players.

The equation that represents this relationship is  $b = pn$ .

Math Item 44

A smartphone screen is designed to be 72 millimeters wide. The quality control team allows for a variation of  $\pm 4\%$  in the width. Select the minimum and maximum screen widths that fall within the acceptable range of screen widths, in millimeters.

Select the correct answer from each drop-down to complete the sentence.

The acceptable screen width is from  to  millimeters.

RESPONSE_A1	RESPONSE_A2
68.00	73.44
69.12	74.88
70.00	75.00
71.28	76.00

**(69.12 mm; 74.88 mm)** A variation of  $\pm 4\%$  in the width means that the width of the smartphone can be from 4% less than the standard of 72 mm to 4% greater than 72 mm.

The least allowed measure is

$$72 - 0.04(72) = 72 - 2.88 = 69.12 \text{ mm}$$

The greatest allowed measure is

$$72 + 0.04(72) = 72 + 2.88 = 74.88 \text{ mm}$$

Therefore, the allowable range is from 69.12 mm to 74.88 mm in width.

Math Item 45

Malik earns \$10 per hour at his job. He wants to change to a job that will pay \$12 per hour. What will be the percent increase in Malik's hourly pay if he makes this job change?

- A. 2%
- B. 20%
- C. 83%
- D. 120%

**(B)** Subtract to determine the amount of increase in Malik's hourly pay if he changes jobs.

$$12 - 10 = 2$$

Divide the increase amount by the original hourly pay rate.

$$2 \div 10 = 0.2$$

Multiply the quotient by 100 to express the decimal amount as a percentage.

$$0.2 \times 100 = 20$$

Math Item 46

A rain gauge shows that 10 centimeters of rain fell yesterday. If 1 inch is equal to approximately 2.5 centimeters, about how many inches of rain fell yesterday?

- A. 1
- B. 2.5
- C. 4
- D. 10

**(C)** Set up a proportion to solve:

$$\frac{1 \text{ in.}}{2.5 \text{ cm}} = \frac{x \text{ in.}}{10 \text{ cm}}$$

$$2.5x = 10$$

$$x = 10 \div 2.5$$

$$x = 4$$

10 centimeters is approximately 4 inches.

Math Item 47

The height of a plant, in millimeters, is proportional to the number of days the plant has grown. The plant has grown 20 millimeters in 8 days. What is the constant of proportionality, in millimeters per day?

- A. 0.4
- B. 2.5
- C. 12
- D. 20

**(B)** The constant of proportionality is determined by dividing the number of millimeters by the number of days:

$$\frac{20 \text{ mm}}{8 \text{ days}} = \frac{20}{8} = 2.5 \text{ mm/day}$$

Which table shows a proportional relationship?

A.

$x$	$y$
0	0
4	$\frac{3}{2}$
8	3

B.

$x$	$y$
0	1
4	$\frac{7}{2}$
8	6

C.

$x$	$y$
0	-1
4	$-\frac{1}{2}$
8	0

D.

$x$	$y$
0	0
4	12
8	16

**(A)** The first table is the only one with a constant of proportionality,  $\frac{3}{8}$ .

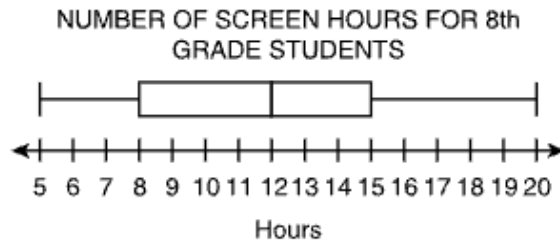
In each ordered pair,  $\frac{3}{8}x = y$ .

$$\frac{3}{8}(0) = 0$$

$$\frac{3}{8}(4) = \frac{12}{8} = \frac{3}{2}$$

$$\frac{3}{8}(8) = \frac{24}{8} = 3$$

The box plot illustrates the number of hours eighth-grade students spend on screens during a typical week. What is the difference between the range and the interquartile range (IQR) of the screen time data?



Move the correct answer to each box. Not all answers will be used.

- 5  
  7  
  8  
  15

The range of screen time hours is  hours.

The IQR is  hours.

The difference between the range and the IQR is  hours.

**(15; 7; 8)**

Determine the range by subtracting the minimum value on the box plot from the maximum value on the box plot:

Maximum value = 20 hr Minimum value = 5 hr

$$20 \text{ hr} - 5 \text{ hr} = 15 \text{ hr}$$

Determine the interquartile range by subtracting the lower quartile value on the box plot from the upper quartile value on the box plot:

Upper Quartile Value = 15 hr, Lower Quartile Value = 8 hr

$$15 \text{ hr} - 8 \text{ hr} = 7 \text{ hr}$$

Determine the difference between the range (15 hr) and the interquartile range (7 hr):

$$15 \text{ hr} - 7 \text{ hr} = 8 \text{ hr}$$

Math Item 50

Terry wants to pour cement around the edge of the circular patio in her backyard. The patio has a radius of 5 feet. What is the distance, in feet, around the edge of the patio? Use 3.14 for  $\pi$ .

- A. 15.7
- B. 31.4
- C. 49.3
- D. 78.5

**(B)** To find the distance around a circle if the radius is known, use the formula for circumference,  $C = 2\pi r$ .

$$C = 2(3.14)(5) = 31.4$$