

## 1.4 How to Prepare for the English Language Arts Section

The English Language Arts section consists of 57 multiple-choice questions that assess revising/editing skills and reading comprehension. These questions are aligned to the **New York State Learning Standards**. The pages that follow provide tips for answering the revising/editing and the reading comprehension questions.

### Overview of Revising/Editing Part A

The language skills assessed in this section are based on the Language section of the New York State Learning Standards for Grade 7, as well as skills or standards that may have been introduced in earlier grades, such as the Language Progressive Skills. Each question directs you to read a sentence, a list of sentences, or a paragraph with numbered sentences. Then you are asked to address issues related to conventions of language or punctuation. Examples include:

- selecting the best correction for an error
- identifying a sentence with an error
- improving the writing by combining sentences or revising part of a sentence



### Tips for Revising/Editing Part A

#### First, read the question.

- For most items, read the question first rather than reading the text first so that you know what type of issue to look for while reading the text.

#### Next, read the text in the box and take notes on the issues you observe, while being mindful of time.

- Are there words, phrases, or sentences that are difficult to read due to an error in language usage or punctuation?
- Is there any part of the text that could be written more clearly, concisely, or precisely?
- Quickly mark up the text when you notice an issue. This may help you to select an answer option.
- Keep in mind that your notes should focus on the specific topic of the question.



- Before test day, plan how much time you will spend on Part A; this will help you to be efficient when answering each question on test day.

## SAMPLE QUESTIONS FOR REVISING/EDITING PART A

### Sample 1: Select the best correction/s for an error (or errors).

Read this paragraph.

(1) With its luscious trees and grassy fields stretching like a green ribbon across Manhattan, New York City's Central Park is a natural oasis amid the bustling city. (2) While more than 25 million people visited the park each year, they are also a temporary home to an abundance of migratory birds. (3) During the spring and fall migrations, the park becomes a bird watcher's paradise, prompting scores of avid birders with binoculars in hand to flock to it. (4) More than 270 species of birds, including swallows, thrushes, and at least 25 different species of warblers, have been observed making the park their home in the big city.

How should the paragraph be revised?

- A. Sentence 1: Change **its** to **their**, AND change **is** to **was**.
- B. Sentence 2: Change **visited** to **visit**, AND change **they are** to **it is**.
- C. Sentence 3: Change **becomes** to **became**, AND change **it** to **them**.
- D. Sentence 4: Change **have been** to **had been**, AND change **their** to **its**.



To determine the best revisions for this paragraph, read the possible changes listed in the first option as you read Sentence 1 in the paragraph. If a revision does not need to be made, continue reading each sentence and answer option until you find the correct answer.

## Sample 2: Identify a sentence with an error.

Read this paragraph.

(1) Madison Square Garden is the oldest sports arena in the New York City area, having opened in 1968. (2) The construction of the Garden caused controversy when portions of the iconic Pennsylvania Railroad Station were demolished, leading to the creation of a commission dedicated to preserving New York City's historic landmarks. (3) Although the Garden is home to major sports teams and is a frequent host of major concerts, city officials are concerned that it stands in the way of expanding and modernizing Pennsylvania Station, which operates beneath the arena. (4) In 2013, the city council voted to give the owners of Madison Square Garden a 10-year operating permit, meaning that Madison Square Garden may need to relocate by 2023.

Which sentence should be revised to correct an error in sentence structure?

- E. sentence 1
- F. sentence 2
- G. sentence 3
- H. sentence 4



To identify the sentence, read carefully while being mindful of time; don't just skim. The error could be anywhere in the paragraph.



Note that the error is specific to *sentence structure*, which means it relates to how the words and phrases are placed in a sentence to convey (represent) the relationship between ideas.

### Sample 3: Improve the writing by combining sentences or revising part of a sentence.

Read these sentences.

- (1) Whales are the giants of the ocean, and they spend their lives in underwater song.  
(2) They use their voices to attract a mate, call out to one another, and help navigate new environments.

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

- A. Whales are the giants of the ocean, spending their lives in underwater song, using their voices to attract a mate, calling out to one another, and helping navigate new environments.
- B. Whales, the giants of the ocean, spend their lives in underwater song, use their voices to attract a mate, call out to one another, and help navigate new environments.
- C. Whales are the giants of the ocean, spend their lives in underwater song, use their voices to attract a mate, call out to one another, and help navigate new environments.
- D. Whales, the giants of the ocean, spend their lives in underwater song, using their voices to attract a mate, call out to one another, and help navigate new environments.



To combine sentences, ask yourself

1. Are there any repeated words/ideas that can instead be used just once?
2. How are the different ideas connected? Do they represent a cause and effect, opposing ideas, a sequence, etc.?

#### Sample 1 Explanation

(B) Sentence 2 of the paragraph should be revised to correct the errors in verb tense and pronoun agreement. The paragraph is in the present tense, so the past tense “visited” needs to be changed to “visit.” Additionally, the pronoun “they” needs to be changed to the pronoun “it.” The pronoun refers to “the park,” which is a singular noun; it does not refer to “people,” which is plural. Option B is correct because the revisions in the option correct these errors.

#### Sample 2 Explanation

(E) Sentence 1 of the paragraph should be revised to correct an error in sentence structure. Specifically, the sentence should be revised to correct a misplaced modifier. As the sentence is written, the phrase “having opened in 1968” incorrectly modifies “the New York City area” instead of modifying “Madison Square Garden.” The correct placement of the phrase would change the beginning of sentence 1 to “Madison Square Garden, having opened in 1968, . . .” Option E correctly identifies sentence 1 as having an error in sentence structure.

#### Sample 3 Explanation

(D) Option D shows the best way to combine these sentences clearly and precisely because it shows the relationship between the key ideas of whales spending their lives in underwater song and the practical uses of their song.

## Overview of Revising/Editing Part B

Questions in Part B assess your ability to read a text and then make decisions that improve the overall quality of the writing. The subjects presented in these texts will include historical and current events; people, places, and technology; and phenomena in the biological sciences, physical sciences, and social sciences. Each sentence is numbered so that you can quickly locate and refer to specific parts of the passage.

The text may contain errors such as

- language misuse
- missing or unnecessary supporting details
- missing or inappropriate transitional words, phrases, or sentences
- a missing or an unclear introductory statement or concluding statement
- confusing or illogical organization
- other errors related to language and writing standards



### Tips for Revising/Editing Part B

**First, read the text carefully while being mindful of time; don't skim.**

- You need to understand the author's purpose, main idea, and supporting details of the text in order to answer questions about how the text could be better developed and organized, which requires careful reading.
- You may notice sentences and paragraphs that seem confusing, illogical, unnecessary, disorganized, or generally difficult to read.
- Note that the order in which you should read the text and question(s) for Part B is different from Part A. In Part A, you should read the *question* first. In Part B, you should read the *text* first.

**Next, read each question carefully, while being mindful of time.**

- Refer back to the text and reread the relevant sentences or paragraphs that are mentioned in the question.
- You will also likely need to skim the sentence before and after the sentence that is referenced in a question.
- Consider each answer option, rereading the text as necessary (and as time permits). Determine whether the option represents the best revision.



- Before test day, plan how much time you will spend on Part B; this will help you to be efficient when answering each question on test day.

## Game Night

(1) Some people think that board games are outdated and boring, unable to provide much entertainment to today’s electronic-savvy teens. (2) But opening a cardboard box full of colorful and sometimes elaborate game pieces can offer a refreshing experience, one that cannot be matched by a video game controller and headset. (3) Playing board games is really quite fun.

(4) Board games have exploded in popularity in the past several years as people have discovered how entertaining and interesting a complex or strategic game can be. (5) In the board game Ticket to Ride, players compete against one another. (6) The goal is to create a long railway that connects destinations on a map. (7) This requires collecting resources and building rail lines in strategic places. (8) The game encourages players to think in new ways, and the brain gets exercise that it needs in order to grow.

(9) Playing board games with others can also help bring people together. (10) When you take part in a board game, you get to know the other players. (11) People separated by generations can find common ground across the table from one another when they are all enjoying the same board game. (12) In addition, playing board games can often encourage discussion among players about a variety of topics. (13) Some games are even developed as learning games and aim to teach players about a topic as they play. (14) In a world where digital interactions tend to occur more frequently than true face-to-face interactions, coming together in person to enjoy a board game can be a fun way to maintain or create connections with other people.

(15) In addition to helping people develop relationships, playing board games gives people an opportunity to hone skills that apply to real life. (16) Competitive board games challenge people to compete and to use strategies to outwit one another. (17) Cooperative board games require players to collaborate and to use their individual strengths to achieve a common goal. (18) The act of playing almost any board game can help a person learn to be a humble winner and a gracious loser and help improve a person’s focus, self-control, and critical thinking.

(19) Playing board games is an excellent way to exercise one’s brain, engage with other people, and practice essential strategies for handling real-life situations. (20) There are hundreds of competitive and cooperative board games that can provide the ideal balance between entertainment and challenge.



To maintain formal style, writers often rely on very precise, concise, and sometimes highly academic language. For questions like this, you should read and consider the style of the entire passage and then consider which option best maintains this style.

1. Which revision of sentence 10 best maintains the formal style established in the passage?
- A. When you play a board game with people, you become friendly with them.
  - B. When people participate in a board game, they develop relationships with each other.
  - C. When people get together for a board game, they learn about each other.
  - D. When you become involved in a board game with people, you make friends with the players.

- 2.** Which sentence should be added after sentence 18 to help develop the ideas in the fourth paragraph (sentences 15–18)?
- E.** Playing board games can teach a person a lot about how to manage the daily obstacles that are a natural part of life.
  - F.** The skills used to play games can be useful, as almost all occupations require people to make decisions that can have positive or negative results.
  - G.** People who learn these things will develop strong interpersonal skills, which are an advantage when developing relationships.
  - H.** Concentrating on a goal, responding well to positive and negative outcomes, and making logical decisions are valuable skills in many situations.
- 3.** Which concluding sentence would best follow sentence 20 and support the main argument presented in the passage?
- A.** People should seek out board games that require players to develop complex strategies to defeat opponents.
  - B.** People should choose board games that appeal to them and encourage friends and family to take a seat at the gaming table.
  - C.** People should play board games that involve significant player interaction as they try to achieve the same or different goals.
  - D.** People should find board games that allow friends and family to reap the benefits of regularly playing games.

### Sample 1 Explanation

**(B)** Option B is the correct response because this revision uses precise, formal language (“participate” and “develop relationships”) that maintains the style established in the passage. In addition, this option avoids using the informal second person (“you”) and instead uses “people” to refer to board-game players, which further contributes to the formal style.

### Sample 2 Explanation

**(H)** Option H is the correct response because this sentence further develops the ideas that are presented in sentence 18 (that playing board games can help a person learn to win and lose with grace and can “help improve a person’s focus, self-control, and critical thinking”). This sentence develops these ideas by explaining that these qualities are valuable in situations beyond playing board games.

### Sample 3 Explanation

**(B)** Option B is the correct response because it logically follows the description in sentence 20 that there are “hundreds of competitive and cooperative board games” with the suggestion that a person should choose one that they find appealing or interesting. The passage explains the benefits of playing board games, and the sentence in option B supports the main argument of the passage by emphasizing that playing board games is a fun way to bring people together.

## Overview of Reading Comprehension

This section assesses your ability to read and comprehend up to six texts of both literary and informational genres, which may include any of the text types listed below.

Informational genre may include	Literary genre may include
expository/explanatory texts	poetry
argumentative texts	adventure stories
functional text in the form of: <ul style="list-style-type: none"><li>• personal essays</li><li>• speeches</li><li>• opinion pieces</li><li>• essays about art or literature</li><li>• biographies</li><li>• memoirs</li><li>• journalism</li><li>• historical, scientific, technical, or economic accounts written for a broad audience</li></ul>	historical fiction
	mysteries
	myths
	science fiction
	realistic fiction
	allegories
	parodies
	satire



## Tips for Reading Comprehension

**Read the text carefully while being mindful of time; don't skim.**

- Read the text carefully to ensure you have an accurate and text-based understanding of both the big ideas and important details.
- Monitor your comprehension while you read; if a sentence or paragraph is confusing, try quickly rereading it.

**Take notes.**

- Jot *brief* notes to identify important details, summarize ideas, etc., while reading the text in its entirety.

**Read the question carefully.**

- Read the question carefully so that you clearly understand what the question is asking. For example, do you need to focus on details in just one paragraph or multiple paragraphs?
- If time permits, reread the relevant part or parts of the text.

**Try to determine the answer before reading the answer options.**

- Think of the answer before reading each option. Then read each answer option, eliminating ones that definitely seem incorrect, and choose the one that best matches your thinking.
- Base your answers only on the content of the text (and associated images or graphics where relevant). Do not depend on your prior knowledge of the topic.



- Before test day, plan how much time you will spend on each of the texts and their related questions in the Reading Comprehension section; this will help you to be efficient when answering each question on test day.

### Snoozing While Soaring

- 1 Certain types of birds soar for hundreds of miles, over land, over sea—and never stop to rest. That kind of endurance seems impossible to us, since we as people need time to rest and sleep. Researchers set out to learn how birds could fly for such long distances without restorative rest. They found that for some birds, settling in for a good night's rest is not always a necessity.
- 2 In 2013 Felix Liechti and his research colleagues at the Swiss Ornithological Institute published results of a study about the flight habits of Alpine swifts, small birds that migrate annually between Europe and Africa. Liechti and his team fitted the birds with small electronic tags that recorded the birds' acceleration and their pitch, or angle relative to the ground. The data revealed that the birds remained completely airborne during their time in Africa, a period of over 200 days. Since all animals require sleep, the researchers inferred that the birds slept from time to time on their long journey. However, since the electronic tags recorded only movement such as gliding or flying, and not brain waves, the question of whether birds sleep during flight remained unanswered.
- 3 Researcher Niels Rattenborg from the Max Planck Institute for Ornithology also delved into this question. In a 2006 article Rattenborg explained that it was theoretically possible that birds could undergo a certain type of sleep while flying. Like mammals, Rattenborg explained, birds experience different types of sleep, including slow-wave sleep (SWS). Rattenborg argued that SWS during flight is plausible because SWS can happen in one hemisphere of the brain at a time, leaving half of the brain essentially awake while the other half sleeps. The eye associated with the "awake" hemisphere can still function, allowing a bird to see where it is going. Rattenborg decided that electroencephalogram (EEG) recordings of birds' brain waves would ultimately be necessary to determine whether a bird can actually sleep in flight.
- 4 Eventually, Rattenborg and his team were able to create an experiment to prove this theory by studying frigatebirds from the Galápagos Islands. These enormous birds are good subjects for avian-sleep research because they fly far out to sea to hunt fish. However, unlike many seabirds, they cannot land on the water to rest because the physical build of their body—long wings, poorly webbed feet, and minimal feather waterproofing—makes them unable to take off again from the surface of the water. Rattenborg concluded that they must remain in flight for up to two months at a time.
- 5 In an article from 2016, Rattenborg outlined the team's research methods and conclusions. The team humanely implanted EEGs on the skulls of several frigatebirds. After analyzing the EEG readings of the birds while in flight, the team determined that the frigatebirds slow-wave slept for about ten seconds at a time at points when the birds were gliding upward via warm air currents, typically the safest part of the flight. While in flight the birds slept for only 45 minutes a day, which is just enough rest for the birds to function during these long flights. They later recovered from the stress of going with very little sleep when they rested for approximately twelve hours each day back on land.
- 6 Using EEG recordings, Niels Rattenborg solved the puzzle of when birds sleep while traveling long distances. His evidence proved that his theory was correct, and the birds proved themselves to be the ultimate multitaskers as they manage sleep and flight at the same time.

1. Read this sentence from paragraph 1.

**That kind of endurance seems impossible to us, since we as people need time to rest and sleep.**

The words “endurance” and “impossible” in the sentence convey

- A. amazement about the physical capability of birds to remain in flight for extended periods of time over long distances.
  - B. uncertainty about the conditions that allow birds to stay in flight for extended periods of time without rest.
  - C. excitement about the opportunity to share research into how birds fly for extended periods of time.
  - D. skepticism about discovering how birds can fly for extended periods of time with little or no rest.
2. Which sentence from the passage best supports the idea that birds seem to be capable of making prolonged flights without sleeping?
    - E. “The data revealed that the birds remained completely airborne during their time in Africa, a period of over 200 days.” (paragraph 2)
    - F. “In a 2006 article Rattenborg explained that it was theoretically possible that birds could undergo a certain type of sleep while flying.” (paragraph 3)
    - G. “Rattenborg decided that electroencephalogram (EEG) recordings of birds’ brain waves would ultimately be necessary to determine whether a bird can actually sleep in flight.” (paragraph 3)
    - H. “While in flight the birds slept for only 45 minutes a day, which is just enough rest for the birds to function during these long flights.” (paragraph 5)

3. Which statement best summarizes the conclusions of the studies presented in the passage?
- A. Scientists used monitoring devices to determine that the seconds when migratory birds glide upward in warm air currents are safest for slow-wave sleep.
  - B. Using monitoring devices, scientists confirmed that migratory birds sleep for an extremely short amount of time while in flight and recuperate by sleeping for an extended period of time after they land.
  - C. Scientists used monitoring devices to determine that migratory birds require significantly less sleep than many other animals and to show that the birds use only one hemisphere of their brain while flying.
  - D. Using monitoring devices, scientists confirmed that some types of migratory birds rely on slow-wave sleep cycles in order to stay in flight for extended periods of time.
4. The overall organizational structure of the passage allows the author to
- E. contrast the significance of research findings related to small migratory birds with those related to large migratory birds.
  - F. compare the in-flight sleep patterns of the various types of birds examined in several studies.
  - G. emphasize the role of technology in studying sleep patterns of birds in flight.
  - H. illustrate how researchers acquired a better understanding of the sleep patterns of birds in flight.

#### Sample 1 Explanation

(A) Option A is the correct response because it explains that the words “endurance” and “impossible” convey amazement at the birds’ ability to remain in flight for so long without resting—as opposed to human beings, who “need time to rest and sleep” (paragraph 1). Specifically, the word “impossible” implies a sense of wonder or disbelief at the birds’ endurance, which allows them to continue flying for hundreds of miles without stopping. The words “endurance” and “impossible” support the idea expressed later in the passage that these birds are the “ultimate multitaskers” (paragraph 6).

#### Sample 2 Explanation

(E) Option E best supports the idea that birds seem to be capable of making prolonged flights without sleeping, because it expresses the idea that the birds “remained completely airborne” during “a period of over 200 days” (paragraph 2). This information is significantly more precise than the information in the other answer options. Therefore, option E provides more compelling evidence to support the idea in the question than the other answer options provide.

#### Sample 3 Explanation

(D) Option D best summarizes the conclusions of the studies presented in the passage. While all the options include some important details about the study of migratory birds, option D accurately states the key conclusion of these studies, which is that these birds “rely on slow-wave sleep cycles in order to stay in flight for extended periods of time” (paragraph 5). Option D’s emphasis on the key conclusion rather than on key details makes it the correct response.

#### Sample 4 Explanation

(H) Option H best explains the effect of the overall structure of the passage. The passage presents an unresolved question in paragraph 2, while paragraph 3 explains one researcher’s attempt at seeking an answer to the question. Paragraph 4 describes the bird the researchers chose due to its physical makeup and feeding habits. Paragraphs 5 and 6 illustrate the details and outcome of the study, revealing the researchers’ conclusion. Therefore, the overall structure of the passage illustrates how researchers improved their understanding of the sleep patterns of birds in flight.

## 2.5 How to Prepare for the Math Section

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The Math section consists of word problems and computational questions in either a grid-in or multiple-choice format. There are five grid-in questions and 52 multiple-choice questions. The Math questions involve application of mathematical skills, mathematical terms, and general concepts from the New York State Learning Standards for Mathematics. However, as one of the purposes of this test is to identify students who will benefit from an education at a Specialized High School, the SHSAT Math items will require you to apply familiar Math skills to complex, multi-step problems.

Math questions on the Grade 8 test forms are based on the New York State Learning Standards through Grade 7. Math questions on the Grade 9 test forms are based on material through Grade 8.

The following pages outline a variety of tips to help you prepare for taking the Math section on the SHSAT. They include the following:

- tips to improve your Math skills in Math topics you need more practice with
- tips to familiarize you with expectations that are specific to the SHSAT and may therefore be different from other Math tests you take
- tips specifically for answering multiple-choice Math questions
- tips specifically for answering Math grid-in questions

**Note:** Answers and answer explanations for all the Math sample items can be found on pages 23–25.



### Tips to Improve Your Math Skills

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#### Review Math resources.

- Use your Math textbook, seek out other Math resources at school or at your local library, or ask your teacher to recommend resources for you to use.

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#### Practice solving Math questions every day. Solve both basic and challenging questions.

- Basic questions reinforce Math skills such as simplifying fractions and applying the concept of statistics.
  - More challenging questions require setting up complex equations with multiple steps. They may also require using various types of Math skills. For example, you may use fractions, solve for equations, and apply your knowledge of statistics to answer one question.
  - If you are unsure of how to answer a question, skip it and return to it after answering the other questions. You may have a better idea of how to solve a problem after completing other questions.
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## Things to Keep in Mind While Preparing for the Math Section

**Memorize mathematical terms, symbols, and formulas that you use in your Math class.**

- You must know the meanings of mathematical terms that are appropriate for your grade level, such as “parallel” and “perpendicular,” as well as the symbols that represent those terms.
- You can find mathematical terms, symbols, and formulas, such as those for perimeter and area of different figures, in the materials for your Math classes and online in the Grade 7 and 8 New York State Learning Standards.
- Definitions and explanations for terms, symbols, and formulas will NOT be given in the test booklet. Practice using them to solve questions until you have memorized them and can use them with ease.

**Do not use a calculator when solving questions.**

- The use of calculators is **not** permitted while taking the SHSAT.



- Before test day, plan how much time you will spend on the Math section; this will help you to be efficient when answering each question on test day.



## Tips for Solving Math Problems

### Read each question carefully.

- Read carefully so that you accurately set up complex problems using *all* the important information from the question.
- Mark up the question, as in Sample 1, to ensure you include all the information when solving the problem.
- Change words from the question into mathematical symbols (as noted in Sample 1 and Sample 2).

### Sample 1

The  $+$  sum of two consecutive integers  $x, x+1$  is  $= -15$ . If 1 is added to the smaller integer and 2 is subtracted from the larger integer, what is the **product** of the two resulting integers?



Mark up the question to prepare for solving the problem.

### Sample 2

$J$  Jenny starts a game with  $2K$  twice as many marbles as Keiko.  $J-5$  Jenny gives Keiko 5 marbles, but she still has 10 more than Keiko. How many marbles did Jenny have to start with?

- A. 25
- B. 30
- C. 35
- D. 40



Change words from the question into mathematical symbols.

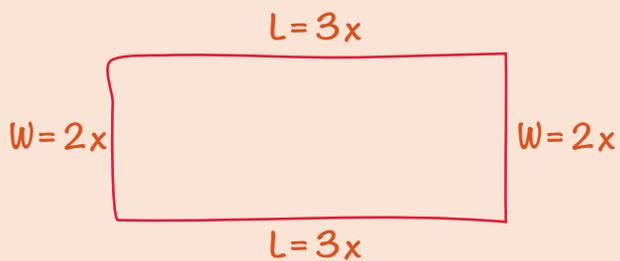
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**Draw figures or diagrams for questions that do not have them.**

➤ Draw figures or diagrams, like in the example below, to help you visualize what the question is describing.

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### Sample 3



The perimeter of a rectangle is 510 centimeters. The ratio of the length to the width is 3:2. What are the dimensions of this rectangle?

- E.** 150 cm by 105 cm
- F.** 153 cm by 102 cm
- G.** 158 cm by 97 cm
- H.** 165 cm by 90 cm



Label figures and diagrams.

**Take one step at a time.**

➤ Some questions ask you to combine a series of steps. Write out one step at a time, like in the example below, to solve multi-step problems.

### Sample 4

1 dollar = 7 lorgs  
1 dollar = 0.5 dalt

Malik has 140 lorgs and 16 dalts. If he exchanges the lorgs and dalts for dollars according to the rates above, how many dollars will he receive?

- A. \$28
- B. \$52
- C. \$182
- D. \$282

$$\frac{140}{x} = \frac{7}{1}$$

$$7x = 140$$

$$x = \$20$$

$$\frac{16}{x} = \frac{0.5}{1}$$

$$0.5x = 16$$

$$x = \$32$$

$$20 + 32 = \$52$$



Step 1: Convert lorgs to dollars.



Step 2: Convert dalts to dollars.



Step 3: Add your conversions of lorgs and dalts together.



## Tips for Math Multiple-Choice Questions

**Most multiple-choice questions should be done by working out the answer.**

- Solving the problem *before* looking at the answer options is more effective than looking first at the answer options and *then* trying to estimate the accuracy of each one to get to the correct answer.

**It is best to solve problems on paper (rather than just in your head) and to focus on solving rather than selecting.**

- When you get an answer, look at the choices listed. If your answer is included among the choices, mark it. If it is not, reread the question and solve it again.
- If your answer is not among the answer options, consider other ways to write your answer. For example;  $\frac{5}{9}(3 + x)$  is equivalent to all of the following:  
 $\frac{5(3 + x)}{9}$  and  $\frac{5}{3} + \frac{5}{9}x$  and  $\frac{5}{3} + \frac{5x}{9}$ .
- If your answer is still not among the answer options, make your best guess and/or come back later if you have time.

### Sample 1 Explanation

If  $x$  is the smaller consecutive integer, then  $x + 1$  is the larger consecutive integer. Use their sum  $-15$  to find  $x$ :

$$x + (x + 1) = -15$$

$$2x + 1 = -15$$

$$2x = -16$$

$$x = -8$$

The two consecutive integers are  $-8$  and  $-7$ .

One is added to the smaller integer:  $-8 + 1 = -7$ .

Two is subtracted from the larger integer:  $-7 - 2 = -9$ .

Find the product:  $-7 \times -9 = 63$ .

### Sample 2 Explanation

(D) Set up some equations.

Jenny ( $J$ ) has twice as many marbles as Keiko ( $K$ ):  $J = 2K$

Jenny gives Keiko 5 marbles, so now they each have:  $J - 5$  and  $K + 5$  marbles.

Jenny still has 10 more than Keiko:

$$J - 5 = (K + 5) + 10$$

To find how many marbles Jenny had to start with, solve  $J = 2K$  for  $K$  and substitute that into the second equation:

In equation  $J = 2K$ , solve for  $K$ :  $K = \frac{J}{2}$ .

Substitute  $\frac{J}{2}$  in for  $K$ .

$$J - 5 = (K + 5) + 10$$

$$J - 5 = \left(\frac{J}{2} + 5\right) + 10$$

$$J - 5 = \frac{J}{2} + 15$$

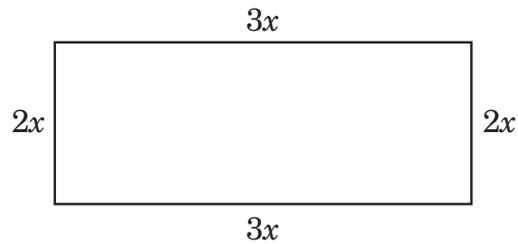
$$\frac{J}{2} = 20$$

$$J = 40 \text{ marbles}$$

### Sample 3 Explanation

(F) Let  $2x =$  the width and  $3x =$  the length.

Draw the rectangle to help visualize.



Since  $2w + 2l = P$ , we get

$$2(2x) + 2(3x) = 510$$

$$4x + 6x = 510$$

$$10x = 510$$

$$x = 51$$

$$2x = 102\text{cm and } 3x = 152 \text{ cm}$$

**Sample 4 Explanation**

(B) Use proportions to make the conversions:

**Lorgs to dollars:**

$$\frac{140}{x} = \frac{7}{1}$$

$$7x = 140$$

$$x = \$20$$

**Dalts to dollars:**

$$\frac{16}{x} = \frac{0.5}{1}$$

$$0.5x = 16$$

$$x = \$32$$

$$\text{Total dollars} = 20 + 32 = \$52$$

## How to Complete Math Grid-In Questions

The Math section includes five grid-in questions for which students must solve computational questions and provide the correct numerical answer rather than selecting the answer from multiple-choice options.

- The grid for each question is made up of five columns. When you record your answer in the grid, begin on the left.
- For each grid-in question, write your answer in the boxes at the top of the grid.
- Print only one number or decimal symbol in each box. Use the "." symbol if your response includes a decimal point.
- Fill in the circle under the box that matches the number or symbol that you wrote.

**EXAMPLE A**  
(Answer: 5)

Write the answer in these boxes. →

Fill in the circles that correspond to the answer written in the boxes.

	5			
−	.	.	.	.
0	0	0	0	0
1	1	1	1	1
2	2	2	2	2
3	3	3	3	3
4	4	4	4	4
●	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9

**EXAMPLE B**  
(Answer: 3.2)

Negative sign →

Decimal point ←

	3	.	2	
−	.	●	.	.
0	0	0	0	0
1	1	1	1	1
2	2	●	2	2
●	3	3	3	3
4	4	4	4	4
5	5	5	5	5
6	6	6	6	6
7	7	7	7	7
8	8	8	8	8
9	9	9	9	9



## How to Answer Math Grid-In Questions (*continued*)

- Do not leave a box blank in the middle of an answer. If there is a blank in the middle of your answer, it will be scored as incorrect. For example, if your answer is 308, **Example F** is the acceptable way to grid in your response. In **Example G**, there is a space between the 3 and the 8 rather than a 0—this is an unacceptable way to grid in your response and will be scored as incorrect.

EXAMPLE F  
(Answer: 308)

	3	0	8	
-	.	.	.	.
0	0	0	0	
1	1	1	1	
2	2	2	2	
3	3	3	3	
4	4	4	4	
5	5	5	5	
6	6	6	6	
7	7	7	7	
8	8	8	8	
9	9	9	9	

EXAMPLE G  
(Answer: 38)

	3		8	
-	.	.	.	.
0	0	0	0	
1	1	1	1	
2	2	2	2	
3	3	3	3	
4	4	4	4	
5	5	5	5	
6	6	6	6	
7	7	7	7	
8	8	8	8	
9	9	9	9	

- Do not fill in a circle under an unused box, as in **Example H**. The answer recorded in Example H will be scored as 3,080 because the circle in the last column for 0 is filled in, even though the intended response is 308.

EXAMPLE H  
(Answer: 3080)

	3	0	8	
-	.	.	.	.
0	0	0	0	
1	1	1	1	
2	2	2	2	
3	3	3	3	
4	4	4	4	
5	5	5	5	
6	6	6	6	
7	7	7	7	
8	8	8	0	
9	9	9	9	

## Important Notes about Grid-Ins

- For your answer to be scored, the circles in the grid must be filled in.
- If you write an answer in the boxes but do not fill in the circles in the grid, your answer will be scored as incorrect.
- If your answer written in the boxes does not match how you have filled in the circles, your score will be based on how you have filled in the circles, like in Example H.
- If there is more than one circle filled in for a column, your answer will be scored as incorrect.
- A complete numerical response that is correct will be scored as correct, even if you accidentally begin recording in the wrong column.
- If you accidentally add a decimal point (with no additional values or zeros) after a whole number, your answer will be scored as that whole number. For example, if your answer is 5, as in Example A, an answer that is filled in as 5. or 5.0 will be considered an answer of 5 in scoring.