

**South Carolina SC READY 2018  
Grade 6 Math Practice**

**Exam & Answer Key Materials  
Pages 2 - 23**



## **Grade 6 Mathematics**

**SAMPLE ITEMS**

## Introduction

The South Carolina Department of Education provides districts and schools with tools to assist in delivering focused instruction aligned with the South Carolina College- and Career-Ready Standards (SCCCRS). This document contains a set of twenty SC READY test items that have been written to align with the South Carolina College- and Career-Ready Standards. These items were reviewed for content and bias prior to being field tested and approved for release to the public.

## Purpose

This document is intended to be a resource for educators; it is not designed to be a practice test for students. The sample items are examples of college- and career-ready assessment items. These items were chosen to reflect the increased rigor of assessing the South Carolina College- and Career-Ready Standards which includes the Mathematical Process Standards. SC READY assesses content standards in a variety of ways. This document does not include all item types or standards. In addition, items are given a “calculator” or “no calculator” designation independent of standard alignment.

## Item Information Format

|                             |                                     |
|-----------------------------|-------------------------------------|
| <b>Calculator Usage</b>     | Calculator or No Calculator         |
| <b>Standard Alignment</b>   | SCCCR                               |
| <b>Standard Description</b> | text from SCCCR                     |
| <b>Answer Key</b>           | correct answer                      |
| <b>Depth of Knowledge</b>   | cognitive demand                    |
| <b>Estimated Difficulty</b> | estimate based on student responses |

## Links

South Carolina College- and Career-Ready Standards

<https://ed.sc.gov/instruction/standards-learning/mathematics/standards/>

Norman Webb’s Depth-of-Knowledge for the Four Content Areas

<http://www.webbalign.org/Webbs-DOK-Levels-Summary.pdf>

1. A stadium has 8,436 seats that are divided into 12 different sections. Each section has the same number of seats. How many seats are in each of the 12 sections?
  - A. 73
  - B. 74
  - C. 703
  - D. 704

SC READY MATH Sample Item

1

**Calculator Usage** No Calculator

**Standard Alignment** 6.NS.2

**Standard Description** Fluently divide multi-digit whole numbers using a standard algorithmic approach.

**Answer Key** C

**Depth of Knowledge** 2

**Estimated Difficulty** Medium Difficulty

2. What is the value of  $24,093 \div 3$ ?

- A. 831
- B. 8,031
- C. 8,301
- D. 8,310

|                           |   |                      |  |
|---------------------------|---|----------------------|--|
| SC READY MATH Sample Item | 2 | Calculator Usage     | No Calculator  |
|                           |   | Standard Alignment   | 6.NS.2   |
|                           |   | Standard Description | Fluently divide multi-digit whole numbers using a standard algorithmic approach. |
|                           |   | Answer Key           | B  |
|                           |   | Depth of Knowledge   | 1  |
|                           |   | Estimated Difficulty | Low Difficulty   |

3. Karen says  $\frac{4}{5}$  is equal to 80%. Which statement explains whether Karen is correct?
- A. Karen is correct because  $\frac{4}{5}$  is equivalent to  $\frac{10}{8}$ .
  - B. Karen is correct because  $\frac{4}{5}$  is equivalent to  $\frac{80}{100}$ .
  - C. Karen is incorrect because  $\frac{4}{5}$  is less than 1 and 80% is greater than 1.
  - D. Karen is incorrect because  $\frac{4}{5}$  is not a whole number and 80 is a whole number.

|                           |   |                      |   |
|---------------------------|---|----------------------|---|
| SC READY MATH Sample Item | 3 | Calculator Usage     | No Calculator   |
|                           |   | Standard Alignment   | 6.NS.9  |
|                           |   | Standard Description | Investigate and translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Fractions should be limited to those with denominators of 2, 3, 4, 5, 8, 10, and 100. |
|                           |   | Answer Key           | B   |
|                           |   | Depth of Knowledge   | 3   |
|                           |   | Estimated Difficulty | Low Difficulty  |

4. Which fraction is equivalent to 0.17?

A.  $\frac{1}{17}$

B.  $\frac{1}{7}$

C.  $\frac{17}{100}$

D.  $\frac{17}{10}$

|                           |   |                      |   |
|---------------------------|---|----------------------|---|
| SC READY MATH Sample Item | 4 | Calculator Usage     | No Calculator   |
|                           |   | Standard Alignment   | 6.NS.9  |
|                           |   | Standard Description | Investigate and translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Fractions should be limited to those with denominators of 2, 3, 4, 5, 8, 10, and 100. |
|                           |   | Answer Key           | C   |
|                           |   | Depth of Knowledge   | 1   |
|                           |   | Estimated Difficulty | Low Difficulty  |

5. In Jeremiah's class,  $\frac{2}{5}$  of the students are boys. What percent of the students in Jeremiah's class are boys?
- A. 2.5%
  - B. 4%
  - C. 25%
  - D. 40%

|                           |   |                      |   |
|---------------------------|---|----------------------|---|
| SC READY MATH Sample Item | 5 | Calculator Usage     | Calculator  |
|                           |   | Standard Alignment   | 6.NS.9  |
|                           |   | Standard Description | Investigate and translate among multiple representations of rational numbers (fractions, decimal numbers, percentages). Fractions should be limited to those with denominators of 2, 3, 4, 5, 8, 10, and 100. |
|                           |   | Answer Key           | D   |
|                           |   | Depth of Knowledge   | 1   |
|                           |   | Estimated Difficulty | Medium Difficulty   |



6. An airplane flies at a speed of 460 miles per hour. How many miles does the airplane fly in 3.5 hours?
- A. 463.5
  - B. 690.0
  - C. 1,380.5
  - D. 1,610.0

|                           |   |                      |   |
|---------------------------|---|----------------------|---|
| SC READY MATH Sample Item | 6 | Calculator Usage     | No Calculator   |
|                           |   | Standard Alignment   | 6.RP.3d   |
|                           |   | Standard Description | Apply the concepts of ratios and rates to solve real-world and mathematical problems. Apply concepts of unit rate to solve problems, including unit pricing and constant speed. |
|                           |   | Answer Key           | D   |
|                           |   | Depth of Knowledge   | 2   |
|                           |   | Estimated Difficulty | Medium Difficulty   |

7. A car service charges \$2.40 for driving 1 mile. How much does the company charge for driving 12.45 miles?
- A. \$14.85
  - B. \$24.85
  - C. \$27.48
  - D. \$29.88

|                           |   |                      |   |
|---------------------------|---|----------------------|---|
| SC READY MATH Sample Item | 7 | Calculator Usage     | No Calculator   |
|                           |   | Standard Alignment   | 6.RP.3d   |
|                           |   | Standard Description | Apply the concepts of ratios and rates to solve real-world and mathematical problems. Apply concepts of unit rate to solve problems, including unit pricing and constant speed. |
|                           |   | Answer Key           | D   |
|                           |   | Depth of Knowledge   | 2   |
|                           |   | Estimated Difficulty | High Difficulty   |

8. Birdseed costs \$1.25 per pound. How much does 6 pounds of birdseed cost?
- A. \$4.75
  - B. \$6.85
  - C. \$7.50
  - D. \$8.75

|                           |          |                             |   |
|---------------------------|----------|-----------------------------|---|
| SC READY MATH Sample Item | <b>8</b> | <b>Calculator Usage</b>     | No Calculator   |
|                           |          | <b>Standard Alignment</b>   | 6.RP.3d   |
|                           |          | <b>Standard Description</b> | Apply the concepts of ratios and rates to solve real-world and mathematical problems. Apply concepts of unit rate to solve problems, including unit pricing and constant speed. |
|                           |          | <b>Answer Key</b>           | C   |
|                           |          | <b>Depth of Knowledge</b>   | 1   |
|                           |          | <b>Estimated Difficulty</b> | Low Difficulty  |

9. Which expression is equivalent to  $3x + 2.5(4x + 2)$ ?

- A.  $13x + 2$
- B.  $13x + 5$
- C.  $22x + 2$
- D.  $22x + 5$

|                           |   |                      |  |
|---------------------------|---|----------------------|--|
| SC READY MATH Sample Item | 9 | Calculator Usage     | Calculator   |
|                           |   | Standard Alignment   | 6.EE1.3  |
|                           |   | Standard Description | Apply mathematical properties (e.g., commutative, associative, distributive) to generate equivalent expressions. |
|                           |   | Answer Key           | B  |
|                           |   | Depth of Knowledge   | 1  |
|                           |   | Estimated Difficulty | High Difficulty  |

**10.** Janet buys 4 bags of potatoes.

- The first bag has 8 potatoes in it.
- The second bag has 6 potatoes in it.
- The third bag has 10 potatoes in it.
- She has not yet counted the number of potatoes in the fourth bag.

To represent the total number of potatoes she has, Janet writes  $(8 + 6 + 10) + x$ , where  $x$  is the number of potatoes in the fourth bag. Which expression also represents the total number of potatoes Janet has?

- A.  $2(4 + 3 + 5 + x)$
- B.  $2(6 + 4 + 8) + x$
- C.  $(8 + 6)(10 + x)$
- D.  $(8 + 6) + (10 + x)$

SC READY MATH Sample Item

**10**

|                             |  |
|-----------------------------|--|
| <b>Calculator Usage</b>     | Calculator   |
| <b>Standard Alignment</b>   | 6.EE1.3  |
| <b>Standard Description</b> | Apply mathematical properties (e.g., commutative, associative, distributive) to generate equivalent expressions. |
| <b>Answer Key</b>           | D  |
| <b>Depth of Knowledge</b>   | 2  |
| <b>Estimated Difficulty</b> | Medium Difficulty  |

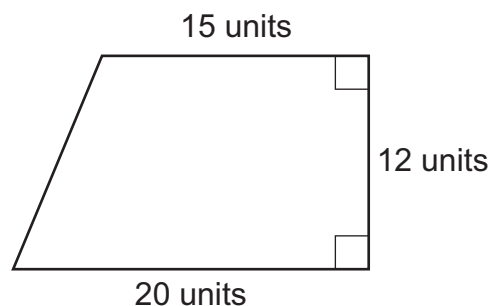
11. Lara writes the expression  $1.5x + 2.75y + 3$ .  
Maria writes the expression  $3 + 1.5x + 2.75y$ .

Which property can be used to prove the two expressions are equivalent?

- A. additive property
- B. associate property
- C. commutative property
- D. distributive property

|                           |                      |  |
|---------------------------|----------------------|--|
| SC READY MATH Sample Item | Calculator Usage     | Calculator   |
|                           | Standard Alignment   | 6.EE1.4  |
|                           | Standard Description | Apply mathematical properties (e.g., commutative, associative, distributive) to justify that two expressions are equivalent. |
|                           | 11 Answer Key        | C  |
|                           | Depth of Knowledge   | 2  |
|                           | Estimated Difficulty | High Difficulty  |

12. A trapezoid is shown.

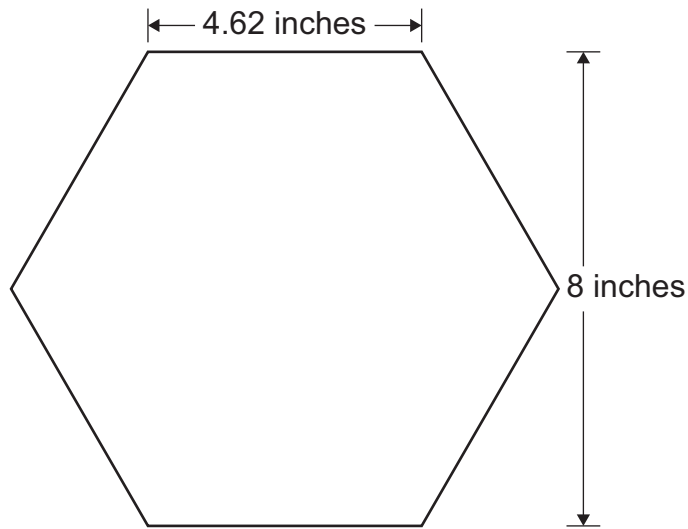


What is the area, in square units, of the trapezoid?

- A. 180
- B. 210
- C. 240
- D. 420

|                           |    |                      |   |
|---------------------------|----|----------------------|---|
| SC READY MATH Sample Item | 12 | Calculator Usage     | Calculator  |
|                           |    | Standard Alignment   | 6.GM.1  |
|                           |    | Standard Description | Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. |
|                           |    | Answer Key           | B   |
|                           |    | Depth of Knowledge   | 1   |
|                           |    | Estimated Difficulty | High Difficulty   |

13. Jamie is finding the area of the hexagon shown.



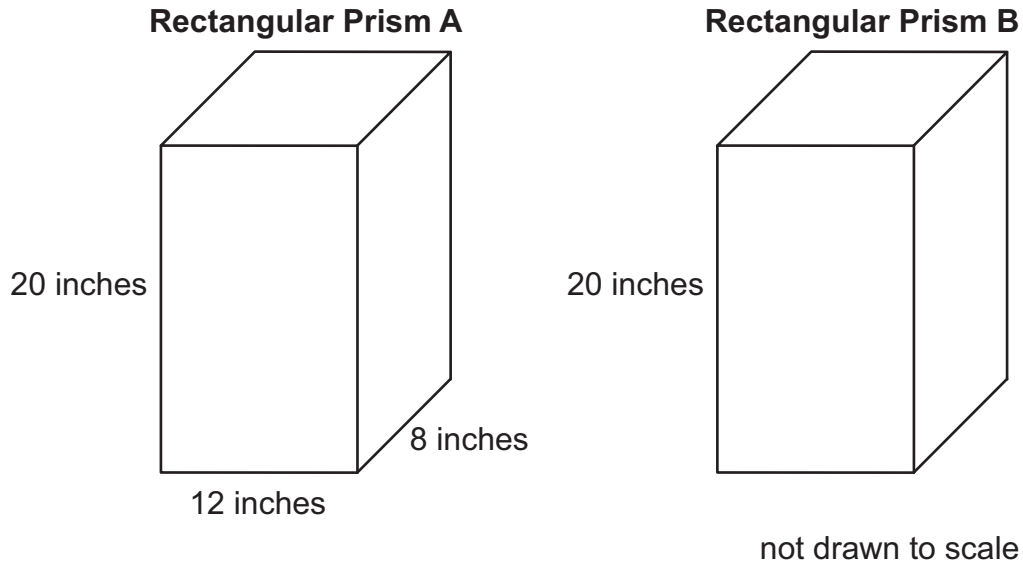
Each side of the hexagon is the same length. Which statement **best** explains how Jamie can find the area of the hexagon?

- A. Add the areas of six congruent triangles, each with a base of 4.62 inches and a height of 4 inches.
- B. Add the areas of six congruent triangles, each with a base of 4.62 inches and a height of 8 inches.
- C. Add the areas of two congruent rectangles, each with a length of 4.62 inches and a height of 4 inches.
- D. Add the areas of two congruent rectangles, each with a length of 4.62 inches and a height of 8 inches.

|                           |    |                      |   |
|---------------------------|----|----------------------|---|
| SC READY MATH Sample Item | 13 | Calculator Usage     | Calculator  |
|                           |    | Standard Alignment   | 6.GM.1  |
|                           |    | Standard Description | Find the area of right triangles, other triangles, special quadrilaterals, and polygons by composing into rectangles or decomposing into triangles and other shapes; apply these techniques in the context of solving real-world and mathematical problems. |
|                           |    | Answer Key           | A   |
|                           |    | Depth of Knowledge   | 3   |
|                           |    | Estimated Difficulty | High Difficulty   |



14. Two right rectangular prisms are shown, with some dimensions labeled.



The area of the base of prism B is 84 square units. Which statement best compares the volumes of the two prisms?

- A. The volume of prism A is equal to the volume of prism B.
- B. The volume of prism A is greater than the volume of prism B.
- C. The volume of prism B is greater than the volume of prism A.
- D. It is impossible to determine the volume of prism B with the information given.

|                      |  |
|----------------------|--|
| Calculator Usage     | Calculator   |
| Standard Alignment   | 6.GM.2   |
| Standard Description | Use visual models (e.g., model by packing) to discover that the formulas for the volume of a right rectangular prism ( $V = lwh$ , $V = Bh$ ) are the same for whole or fractional edge lengths. Apply these formulas to solve real-world and mathematical problems. |
| Answer Key           | B  |
| Depth of Knowledge   | 3  |
| Estimated Difficulty | High Difficulty  |

15. A right rectangular prism has a height of 17.5 centimeters. The area of the base of the prism is 18 square centimeters.

What is the volume, in cubic centimeters, of the right rectangular prism?

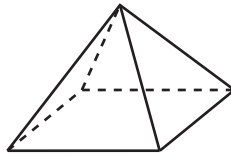
- A. 35.5
- B. 71
- C. 157.5
- D. 315

|                           |    |                      |  |
|---------------------------|----|----------------------|--|
| SC READY MATH Sample Item | 15 | Calculator Usage     | Calculator   |
|                           |    | Standard Alignment   | 6.GM.2   |
|                           |    | Standard Description | Use visual models (e.g., model by packing) to discover that the formulas for the volume of a right rectangular prism ( $V = lwh$ , $V = Bh$ ) are the same for whole or fractional edge lengths. Apply these formulas to solve real-world and mathematical problems. |
|                           |    | Answer Key           | D  |
|                           |    | Depth of Knowledge   | 2  |
|                           |    | Estimated Difficulty | Medium Difficulty  |

16. Two right rectangular prisms, prism A and prism B, have the same height. The volume of prism A is half the volume of prism B. The base of prism A has an area of 40 square inches. What is the area, in square inches, of the base of prism B?
- A. 20
  - B. 40
  - C. 60
  - D. 80

|                           |    |                      |  |
|---------------------------|----|----------------------|--|
| SC READY MATH Sample Item | 16 | Calculator Usage     | No Calculator  |
|                           |    | Standard Alignment   | 6.GM.2   |
|                           |    | Standard Description | Use visual models (e.g., model by packing) to discover that the formulas for the volume of a right rectangular prism ( $V = lwh$ , $V = Bh$ ) are the same for whole or fractional edge lengths. Apply these formulas to solve real-world and mathematical problems. |
|                           |    | Answer Key           | D  |
|                           |    | Depth of Knowledge   | 3  |
|                           |    | Estimated Difficulty | High Difficulty  |

17. Malik wants to find the surface area of the square pyramid shown.



Which statement describes how Malik can calculate the surface area of the square pyramid?

- A. Add the area of 3 identical triangles.
- B. Add the area of 4 identical triangles.
- C. Add the area of 1 square and 3 identical triangles.
- D. Add the area of 1 square and 4 identical triangles.

SC READY MATH Sample Item

17

|                             |   |
|-----------------------------|---|
| <b>Calculator Usage</b>     | Calculator  |
| <b>Standard Alignment</b>   | 6.GM.4  |
| <b>Standard Description</b> | Unfold three-dimensional figures into two-dimensional rectangles and triangles (nets) to find the surface area and to solve real-world and mathematical problems. |
| <b>Answer Key</b>           | D   |
| <b>Depth of Knowledge</b>   | 2   |
| <b>Estimated Difficulty</b> | Medium Difficulty   |

18. Donald collects data about the number of pets the students in his class have. He wants to use one number to show how much the data in his set vary. What number could Donald use?
- A. mean
  - B. median
  - C. mode
  - D. range

|                           |    |                      |   |
|---------------------------|----|----------------------|---|
| SC READY MATH Sample Item | 18 | Calculator Usage     | Calculator  |
|                           |    | Standard Alignment   | 6.DS.3  |
|                           |    | Standard Description | Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. |
|                           |    | Answer Key           | D   |
|                           |    | Depth of Knowledge   | 2   |
|                           |    | Estimated Difficulty | High Difficulty   |

19. A given data set has:

- a mean of 26.5,
- an interquartile range of 5.5,
- a minimum of 21,
- and a maximum of 29.

Which measure describes all the values in the data set?

- A. 5.5
- B. 21
- C. 26.5
- D. 29

SC READY MATH Sample Item

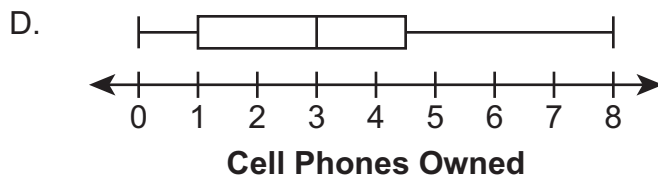
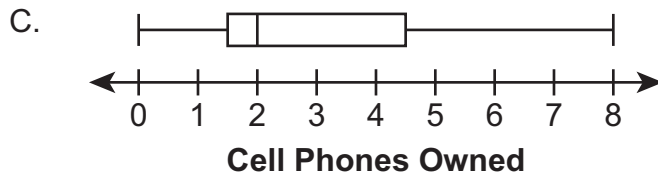
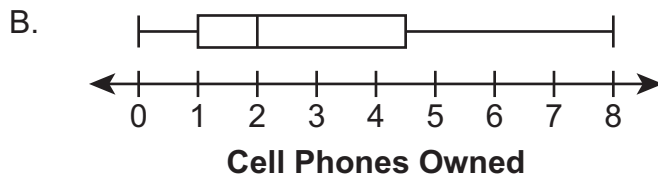
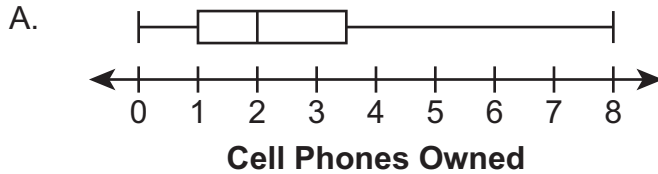
**19**

|                             |   |
|-----------------------------|---|
| <b>Calculator Usage</b>     | Calculator  |
| <b>Standard Alignment</b>   | 6.DS.3  |
| <b>Standard Description</b> | Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number. |
| <b>Answer Key</b>           | C   |
| <b>Depth of Knowledge</b>   | 3   |
| <b>Estimated Difficulty</b> | Medium Difficulty   |

20. Kellen surveys 13 people about the number of cell phones they have owned. His data are shown.

0, 1, 1, 1, 2, 2, 2, 3, 3, 4, 5, 7, 8

Which box plot represents Kellen's data?



SC READY MATH Sample Item

**20**

**Calculator Usage**

Calculator

**Standard Alignment**

6.DS.4

**Standard Description**

Select and create an appropriate display for numerical data, including dot plots, histograms, and box plots.

**Answer Key**

B

**Depth of Knowledge**

2

**Estimated Difficulty**

High Difficulty