SC READY

South Carolina College- and
Career-Ready Assessments

Grade 8 Mathematics

**2015 Sample Items
Realigned to the 2025 Math Standards**

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

Calculator Usage	Calculator *or* No Calculator
Standard Alignment	SCCCR
Standard Description	text from SCCCR
Answer Key	correct answer
Depth of Knowledge	cognitive demand
Estimated Difficulty	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. Which number is irrational?

A. $\dfrac{\pi}{6}$

B. 8.1

C. $11.\overline{9}$

D. $\sqrt{36}$

	Calculator Usage	No Calculator
	Standard Alignment	2025 Standard Alignment - 8.NR.2.2
	Standard Description	Classify and order the subsets of real numbers in the number system including natural, whole, integer, rational, and irrational numbers.
	Answer Key	A
	Depth of Knowledge	1
	Estimated Difficulty	Medium Difficulty

SC READY MATH Sample Item

1

2.   Kaden says the number 13 is an irrational number. Which statement **best** explains whether Kaden is correct?

   A.   Kaden is correct because 13 only has 2 factors.

   B.   Kaden is correct because 13 is not written as a fraction.

   C.   Kaden is incorrect because 13 only has 2 factors.

   D.   Kaden is incorrect because 13 can be written as a fraction.

SC READY MATH Sample Item 2	Calculator Usage	Calculator
	Standard Alignment	2025 Standard Alignment - 8.NR.2.2
	Standard Description	Classify and order the subsets of real numbers in the number system including natural, whole, integer, rational, and irrational numbers.
	Answer Key	D
	Depth of Knowledge	2
	Estimated Difficulty	**High Difficulty**

3. The number line shows four points.
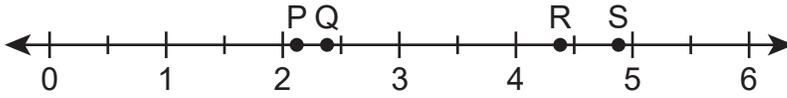
Which point represents the approximate location of $\sqrt{4.8}$?

A.   point P

B.   point Q

C.   point R

D.   point S

SC READY MATH Sample Item **3**	**Calculator Usage**	No Calculator
	Standard Alignment	2025 Standard Alignment - 8.PAFR.3.2
	Standard Description	Approximate non-perfect square roots and cube roots to nearest tenth. Limit to square roots less than or equal to 400 ...
	Answer Key	A
	Depth of Knowledge	2
	Estimated Difficulty	High Difficulty

4. A list of 4 numbers is shown.

$$\sqrt{7}, \ 2.\overline{1}, \ \frac{\pi}{2}, \ 2\sqrt{3}$$

The numbers are plotted on a number line.
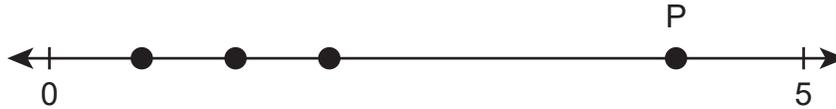
Which number is represented by point P?

A. $\sqrt{7}$

B. $2.\overline{1}$

C. $\frac{\pi}{2}$

D. $2\sqrt{3}$

SC READY MATH Sample Item	4		
		Calculator Usage	No Calculator
		Standard Alignment	2025 Standard Alignment - 8.NR.2.1
		Standard Description	Compare real numbers and write statements using is equal to (=), is not equal to (≠), is less than (<), is greater than (>) ...
		Answer Key	D
		Depth of Knowledge	2
		Estimated Difficulty	High Difficulty

5. Two linear functions are created. The first linear function is represented by the graph shown.
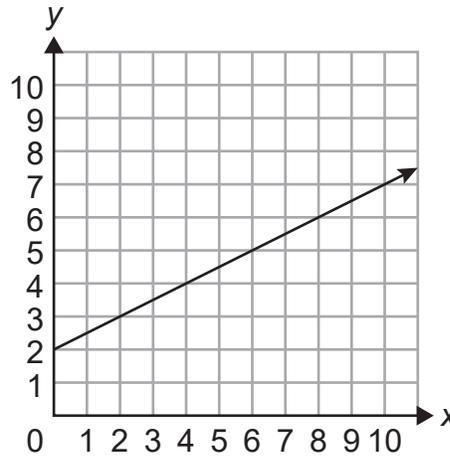
The second linear function has the equation $y = 2x - 6$. Which statement **best** describes the difference between the values of the two functions at $x = 8$?

A. The value of the first linear function is 1 greater than the value of the second linear function.

B. The value of the first linear function is 14 greater than the value of the second linear function.

C. The value of the second linear function is 4 greater than the value of the first linear function.

D. The value of the second linear function is 10 greater than the value of the first linear function.

Calculator Usage	Calculator	
Standard Alignment	2025 Standard Alignment - 8.PAFR.1.5	
Standard Description	Use multiple representations including mappings, tables, graphs, verbal description, and equations (only when linear) of two functions to compare the functions and draw conclusions.	
Answer Key	C	
Depth of Knowledge	3	
Estimated Difficulty	**Medium Difficulty**	

SC READY MATH Sample Item

5

6.   The table shows some values for a linear function.

x	y
0	−2
3	1
6	4
9	7

A second linear function passes the *y*-axis at the point (0, 4) and has a slope of $\frac{1}{4}$. Where do the two functions intersect?

A.   (5, 3)

B.   (8, 6)

C.   (1, −1)

D.   The two functions do not intersect.

7. Mika talks with two different companies about having a banner printed.

- The first company uses the equation $c = 2.75f + 75$ to determine the cost, c, in dollars, for a banner with an area of f square feet.
- The second company charges an initial fee of $80 and charges $3.05 per square foot.

Which statement **best** compares the costs at the two different companies to print Mika's banner?

A.   The cost at the first company is always less than the cost at the second company for banners with equal area.

B.   The cost at the second company is always less than the cost at the first company for banners with equal area.

C.   The cost at the first company is less than the cost at the second company for banners with an area less than a particular value.

D.   The cost at the second company is less than the cost at the first company for banners with an area less than a particular value.

Calculator Usage	Calculator	
Standard Alignment	2025 Standard Alignment - 8.PAFR.1.5	
Standard Description	Use multiple representations including mappings, tables, graphs, verbal description, and equations (only when linear) of two functions to compare the functions and draw conclusions.	
Answer Key	A	
Depth of Knowledge	3	
Estimated Difficulty	High Difficulty	

SC READY MATH Sample Item

7

8. The cost for a pizza at Pizza Palace depends on the size of the pizza and the number of toppings. For a large pizza, the cost in dollars, c, with t number of toppings can be determined with the equation $c = 2t + 18$. What does 2 represent in the equation?

 A. the radius of a large pizza in inches

 B. the cost to add one topping to a large pizza

 C. the cost of a large pizza without any toppings

 D. the number of toppings on a large pizza with a cost of $18

SC READY MATH Sample Item	8	Calculator Usage	No Calculator
		Standard Alignment	2025 Standard Alignment - 8.PAFR.1.2
		Standard Description	Identify and describe the constant rate of change and the y-intercept of a linear function.
		Answer Key	B
		Depth of Knowledge	2
		Estimated Difficulty	High Difficulty

9. The linear function $y = 14x + 22$ represents the cost in dollars, y, to camp at a park for x nights. What is **most likely** represented by the y-intercept of the function?

    A.   the number of nights spent camping

    B.   the cost per night to camp at the park

    C.   the number of people camping

    D.   the cost of a one-time fee for a camping permit

SC READY MATH Sample Item

9

Calculator Usage	Calculator
Standard Alignment	2025 Standard Alignment - 8.PAFR.1.2
Standard Description	Identify and describe the constant rate of change and the y-intercept of a linear function.
Answer Key	D
Depth of Knowledge	2
Estimated Difficulty	High Difficulty

10. Which expression is equivalent to $5^4 \cdot 5^3$?

     A. 5^7

     B. 5^{12}

     C. 25^7

     D. 25^{12}

SC READY MATH Sample Item 10		
Calculator Usage	No Calculator	
Standard Alignment	8.EEI.1 Does not align to a 2025 8th Grade Indicator	
Standard Description	Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property, negative exponents) to simplify numerical expressions that include integer exponents	
Answer Key	A	
Depth of Knowledge	1	
Estimated Difficulty	**Medium Difficulty**	

11. Which expression has a value that can be expressed as a whole number?

A. -3^{-5}

B. $\left(\dfrac{1}{4}\right)^{-3}$

C. $\left(\dfrac{1}{2}\right)^{4}$

D. 2^{-3}

SC READY MATH Sample Item **11**	**Calculator Usage**	No Calculator
	Standard Alignment	8.EEI.1 Does not align to a 2025 8th Grade Indicator
	Standard Description	Understand and apply the laws of exponents (i.e., product rule, quotient rule, power to a power, product to a power, quotient to a power, zero power property, negative exponents) to simplify numerical expressions that include integer exponents.
	Answer Key	B
	Depth of Knowledge	1
	Estimated Difficulty	High Difficulty

12. A system of equations is shown.

$$3x + 4y = 30$$
$$3x + 5y = 33$$

What is the value of y in the solution to the system of equations?

A. $y = 3$

B. $y = 4$

C. $y = 5$

D. $y = 6$

Calculator Usage	Calculator	
Standard Alignment	8.EEI.8.c Does not align to a 2025 8th Grade Indicator	
Standard Description	Investigate and solve real-world and mathematical problems involving systems of linear equations in two variables with integer coefficients and solutions. Solve systems of linear equations algebraically, including methods of substitution and elimination, or through inspection.	
Answer Key	A	
Depth of Knowledge	1	
Estimated Difficulty	High Difficulty	

SC READY MATH Sample Item **12**

13. A company takes care of cats and dogs overnight when their owners are out of town. The company charges $18 per cat per night and $30 per dog per night. On Saturday night, the company took care of a total of 16 cats and dogs. The system of equations shows the total amount the company charged on Saturday night for the number of cats, x, and the number of dogs, y, that were taken care of.

$$x + y = 16$$
$$18x + 30y = 432$$

How many cats did the company take care of on Saturday night?

A.   4

B.   5

C.   8

D.   12

	Calculator Usage	Calculator
	Standard Alignment	8.EEI.8.c Does not align to a 2025 8th Grade Indicator
13	**Standard Description**	Investigate and solve real-world and mathematical problems involving systems of linear equations in two variables with integer coefficients and solutions. Solve systems of linear equations algebraically, including methods of substitution and elimination, or through inspection.
	Answer Key	A
	Depth of Knowledge	2
	Estimated Difficulty	High Difficulty

SC READY MATH Sample Item

14. A system of equations is shown.

$$x + 4y = 10$$
$$3x + 12y = 20$$

What is the solution to the system of equations?

A.   (3, 12)

B. $\left(5, \ 1\frac{1}{4}\right)$

C.   all real numbers

D.   no solution

SC READY MATH Sample Item **14**	**Calculator Usage**	Calculator
	Standard Alignment	8.EEI.8.d Does not align to a 2025 8th Grade Indicator
	Standard Description	Investigate and solve real-world and mathematical problems involving systems of linear equations in two variables with integer coefficients and solutions. Understand that systems of linear equations can have one solution, no solution, or infinitely many solutions.
	Answer Key	D
	Depth of Knowledge	2
	Estimated Difficulty	**Medium Difficulty**

15. The figure below shows two congruent triangles.
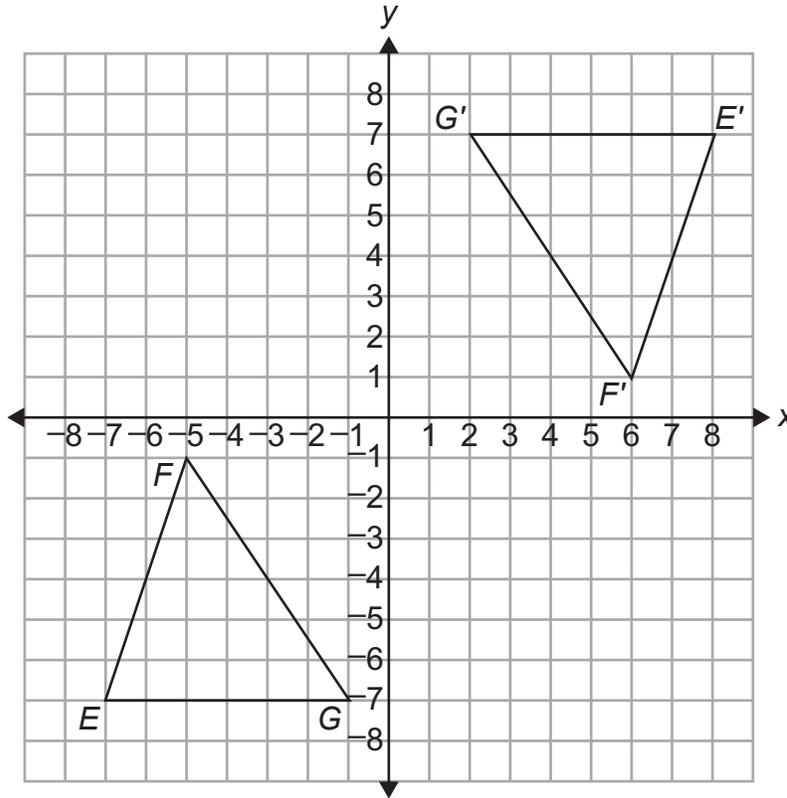
Which series of transformations can be used to map triangle *EFG* onto triangle *E'F'G'*?

A.   a translation 11 units to the left and a reflection across the *x*-axis

B.   a reflection across the *y*-axis and a translation 11 units to the left

C.   a rotation of 180° around the origin and a translation 1 unit to the right

D.   a translation 1 unit to the right and a rotation of 180° around the origin

Calculator Usage	Calculator
Standard Alignment	2025 Standard Alignment - 8.MGSR.3.7
Standard Description	Describe the effect of a series of transformations, including dilations, translations, rotations, and reflections, on two-dimensional figures using coordinates on the coordinate plane.
Answer Key	C
Depth of Knowledge	2
Estimated Difficulty	High Difficulty

SC READY MATH Sample Item

15

16. The graph shows two congruent figures.
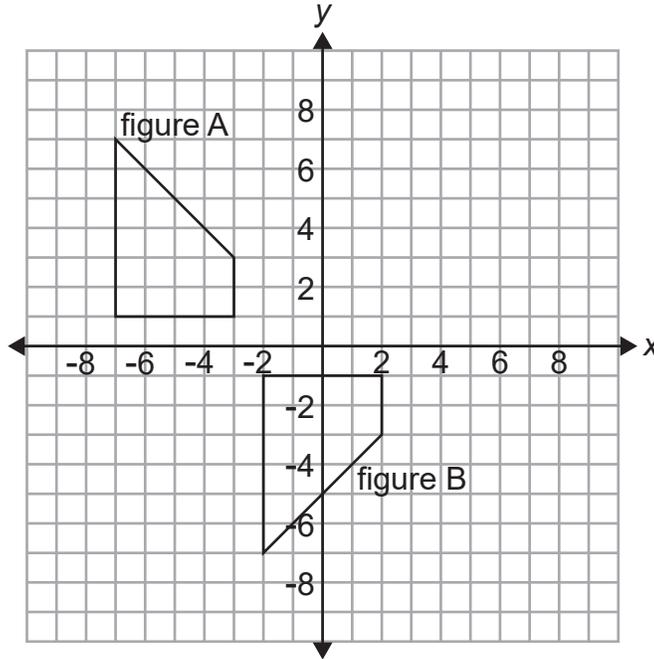
Which two transformations map figure A onto figure B?

A.   a reflection across the *x*-axis and a translation 1 unit to the right

B.   a reflection across the *x*-axis and a translation 5 units to the right

C.   a reflection across the *y*-axis and a translation 1 unit to the right

D.   a reflection across the *y*-axis and a translation 5 units to the right

<div style="border-left: text">SC READY MATH Sample Item</div>

16

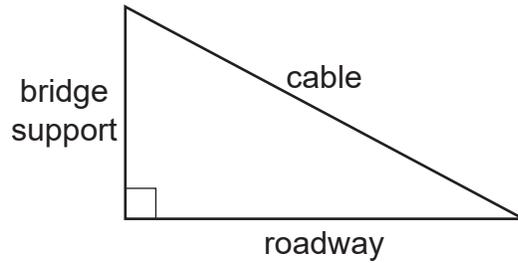| Calculator Usage	No Calculator
Standard Alignment	2025 Standard Alignment - 8.MGSR.3.7
Standard Description	Describe the effect of a series of transformations, including dilations, translations, rotations, and reflections, on two-dimensional figures using coordinates on the coordinate plane.
Answer Key	B
Depth of Knowledge	2
Estimated Difficulty	Medium Difficulty

17. A construction worker has a wooden board with a length of 12 feet and a height of 4 feet. The construction worker makes one cut through the entire board to create two triangular pieces. What is the measurement, rounded to the nearest tenth of a foot, of the cut the construction worker makes?

     A.   6.9

     B.   12.6

     C.   32.0

     D.   80.0

SC READY MATH Sample Item	**Calculator Usage**	Calculator
	Standard Alignment	2025 Standard Alignment - 8.MGSR.1.3
17	**Standard Description**	Given the Pythagorean Theorem, determine unknown side lengths in right triangles in mathematical and real-world situations.
	Answer Key	B
	Depth of Knowledge	2
	Estimated Difficulty	**High Difficulty**

18. The figure shows a bridge support, a cable, and the roadway of a bridge.

The bridge support is 80 feet tall. The length of the cable is 170 feet. What is the distance, in feet, from the base of the bridge support to the point where the cable connects to the roadway?

A. 90

B. 150

C. 190

D. 250

|		
Calculator Usage	Calculator	
Standard Alignment	2025 Standard Alignment - 8.MGSR.1.3	
Standard Description	Given the Pythagorean Theorem, determine unknown side lengths in right triangles in mathematical and real-world situations.	
Answer Key	B	
Depth of Knowledge	2	
Estimated Difficulty	High Difficulty	

SC READY MATH Sample Item

18

19. A candy store records the number of candies a customer purchases and the amount, in dollars, the customer spends. The scatter plot shows the data for the last 10 customers.

Store Customers
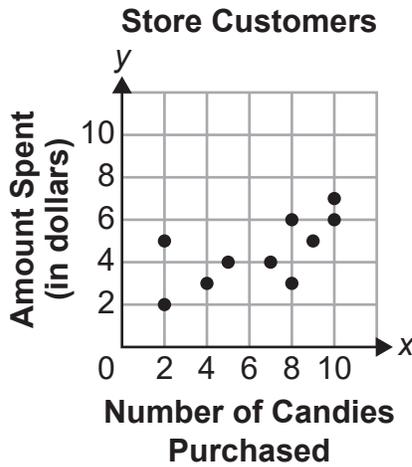
Which scatter plot shows the line of best fit for the candy store's data?

A.
Store Customers

B.
Store Customers

C.
Store Customers

D.
Store Customers
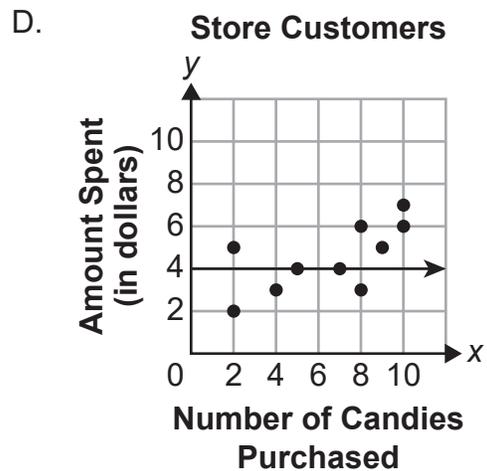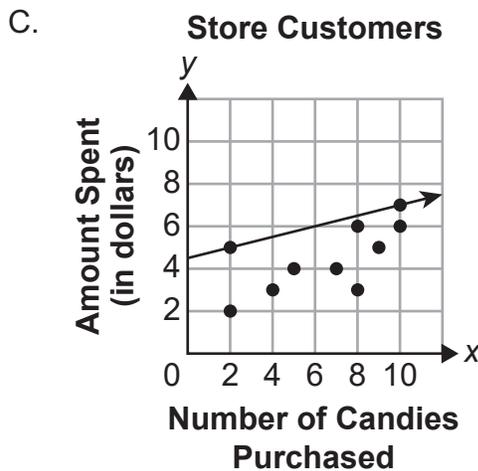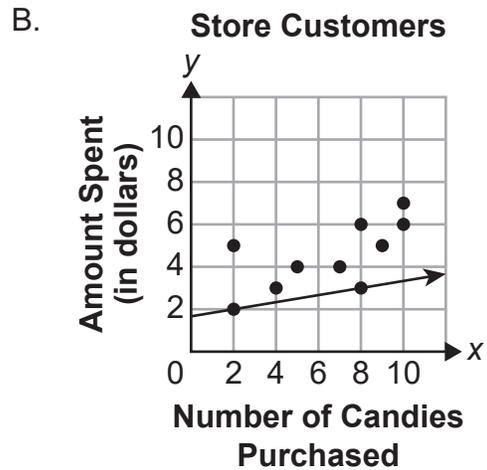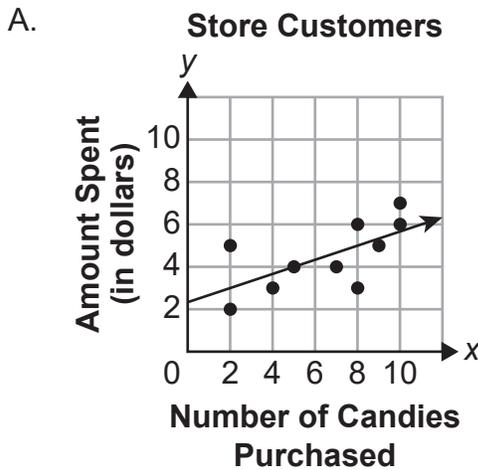
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SC READY MATH Sample Item

19

Calculator Usage	No Calculator
Standard Alignment	8.DSP.2 Does not align to a 2025 8th Grade Indicator
Standard Description	Draw an approximate line of best fit on a scatter plot that appears to have a linear association and informally assess the fit of the line to the data points.
Answer Key	A
Depth of Knowledge	2
Estimated Difficulty	**Low Difficulty**

20. On Saturday, Ari surveys 200 people at a music festival. She asks the people if they are camping overnight and if they are attending the festival on Sunday. She makes the two-way table shown to display her results.

Results of Music Festival Survey

	Attending on Sunday	Not Attending on Sunday
Camping Overnight	83	3
Not Camping Overnight	57	57

A randomly selected person from Ari's survey is not camping overnight. What is the probability, rounded to the nearest whole percentage, the randomly selected person is attending the music festival on Sunday?

A.   41%

B.   50%

C.   57%

D.   69%