Grade 8

FAST Mathematics

Sample Test Materials Answer Key

The Grade 8 FAST Mathematics Sample Test Materials Answer Key provides the correct response(s) for each item on the sample test. The sample items and answers are not intended to demonstrate the length of the actual test, nor should student responses be used as an indicator of student performance on the actual test.

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1. Four numbers are shown.

π	$\sqrt{8}$	$0.\overline{23}$	$\sqrt{49}$

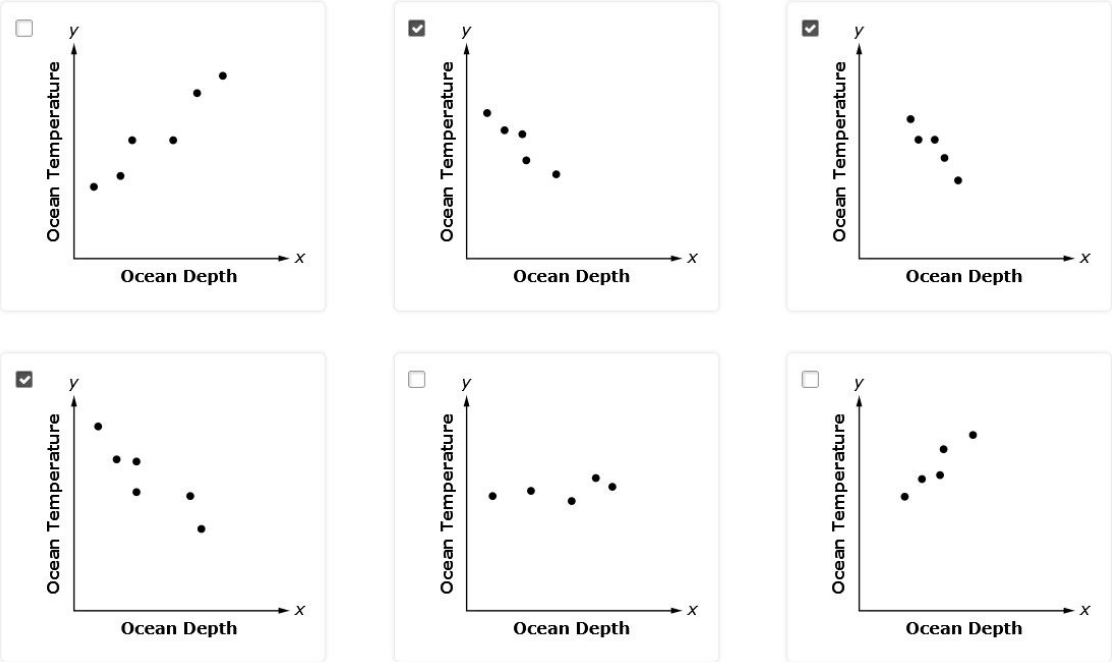
Complete the statement explaining which two numbers are rational.

The two rational numbers are [$0.\overline{23}$ and $\sqrt{49}$] because they [can] be expressed as a ratio of two integers.

Go On

2. Gia records the temperature of ocean water at different depths and finds that the relationship between temperature and depth have a negative association.

Select all the scatter plots that could represent Gia's data.



Option B: **This answer is correct.** *The student recognized that the scatter plot shows a negative relationship since the y-values generally tend to decrease as the x-values increase.*

Option C: **This answer is correct.** *The student recognized that the scatter plot shows a negative relationship since the y-values generally tend to decrease as the x-values increase.*

Option E: **This answer is correct.** *The student recognized that the scatter plot shows a negative relationship since the y-values generally tend to decrease as the x-values increase.*

3. An expression is shown.

$$\left(\frac{-1}{2}\right)^3 + \sqrt{8^2 - 15}$$

What is the value of the expression?

- ● $6\frac{7}{8}$
- Ⓑ $7\frac{1}{8}$
- Ⓒ $48\frac{7}{8}$
- Ⓓ $49\frac{1}{8}$

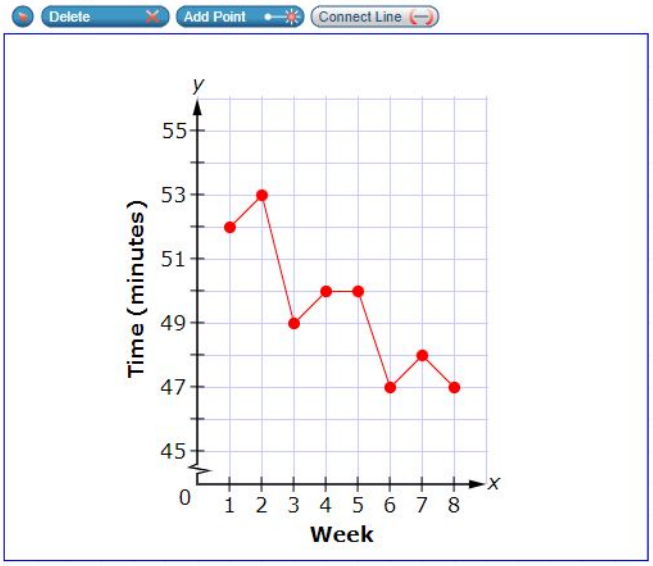
<u>Option A</u>: **This answer is correct.** *The student correctly determined the value of the expression to be* $\frac{55}{8}$ *or* $6\frac{7}{8}$.

Go On

4. Louis tracks changes in his running time, in minutes, over a number of weeks. He records how long it takes him to run 5 kilometers once a week for 8 weeks. The table shows his data.

Week	Time (minutes)
1	52
2	53
3	49
4	50
5	50
6	47
7	48
8	47

Use the Connect Line tool to create a line graph of Louis's data.



Select two (2) points to connect or press and drag to create and connect points.

Go On

5. An expression is shown.

$(2.3 \times 10^4) \times (4.1 \times 10^2)$

Enter a number and select a power of 10 to show the value of the expression in scientific notation.

9.43 × 10^6

Other correct responses: *any equivalent expression in scientific notation*

6. Select the boxes to identify the number of solutions to each equation.

	No Solutions	One Solution	Infinitely Many Solutions
$3x - 5 = 3(x - 2) + 1$	☐	☐	☑
$3x - 5 = -9x + 15$	☐	☑	☐
$3x - 5 = 3x + 10$	☑	☐	☐

7. A table of values of a linear relationship is shown.

x	0	1	2
y	15	12	9

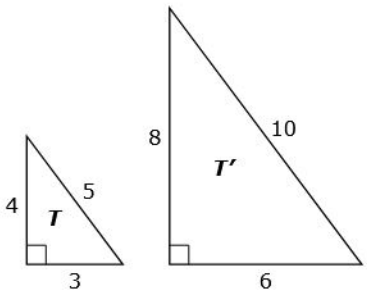
Create an equation to represent the relationship.

$y=-3x+15$

Other correct responses: *any equivalent equation*

Go On

8. The transformation of triangle T to triangle T' is shown.



Select a word and a value to complete the description of the transformation.

Triangle T is similar to triangle T'.

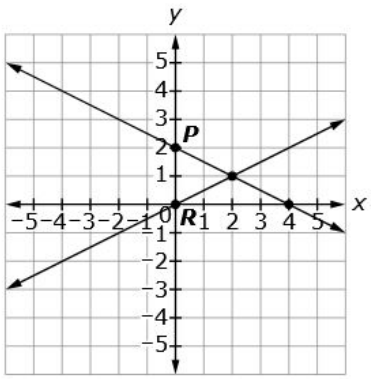
Triangle T can be transformed to triangle T' using a dilation with a scale factor of 2.

Go On

9. A system of equations is shown.

$y = \frac{1}{2}x$
$y = -\frac{1}{2}x + 2$

Kayla graphs the system to solve it. She marks her solutions with *P* and *R*.



This question has **two** parts.

Part A
Which statement describes Kayla's solutions?

Ⓐ Her solutions are correct.

Ⓑ She marked the *y*-intercepts instead of the *x*-intercepts.

● She marked the *y*-intercepts instead of the intersection point of the two lines.

Ⓓ She marked only the *y*-intercepts instead of the *x*- and *y*-intercepts.

Part B
What is a solution to the system of equations?

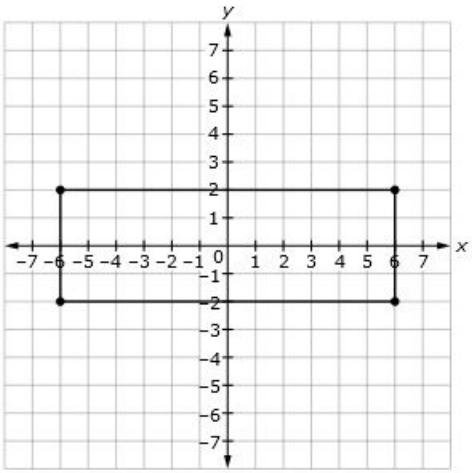
(2 , 1)

Option C: **This answer is correct.** *The student correctly identified that Kayla made a mistake and what her mistake was.*

Other correct responses: *for Part B, any equivalent values*

Go On

10. A figure on a coordinate plane is shown.



Select all the transformations that will map the figure onto itself.

- [ ] translation up 4 units
- [x] reflection across the *y*-axis
- [ ] dilation by a factor of 3 about the origin
- [ ] rotation 90 degrees clockwise about the origin
- [x] rotation 180 degrees counterclockwise about the origin

Option B: **This answer is correct.** *The student identified that this reflection will carry the rectangle onto itself.*

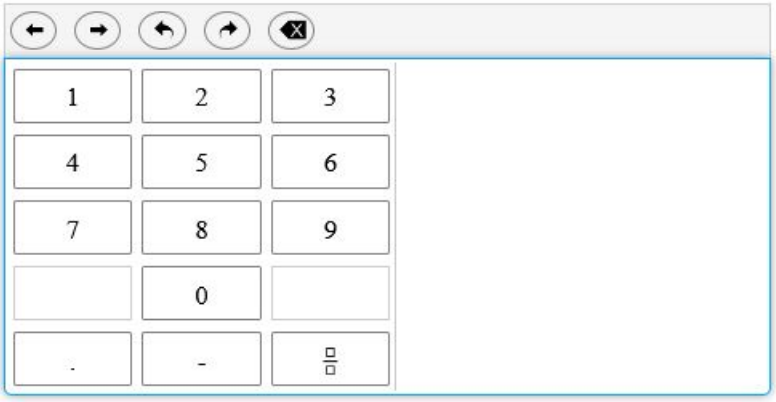
Option E: **This answer is correct**. *The student identified that this rotation will carry the rectangle onto itself.*

11. An expression is shown.

$(1.3x)(2.6x + 4)$

Enter values to complete the product of the expression.

3.38 $x^2 +$ 5.2 x



Other correct responses: *any equivalent values*

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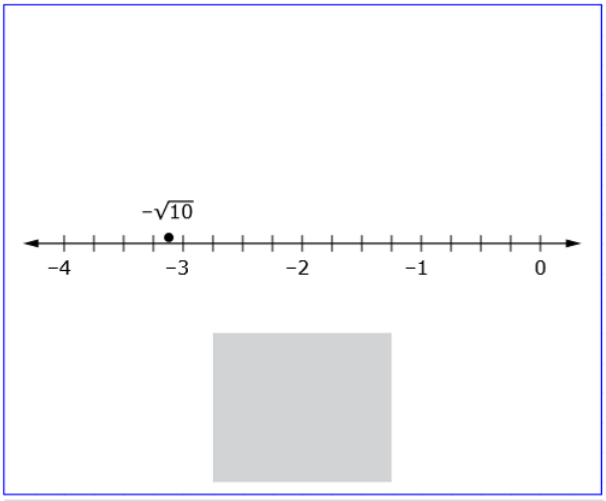
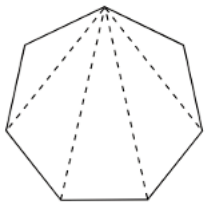
12. Drag the point onto the number line to show the approximate location of $-\sqrt{10}$.



Other correct responses: *any value between –3 and –3.5, exclusive*

Go On

13. A regular heptagon is separated into triangles, as shown.



Evan writes an incorrect expression to find the sum of the interior angles of the heptagon.

Evan's expression is shown. Click on **all** of the errors in Evan's expression.

(7 − 5) × 90

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