



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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FAST Mathematics Sample Items Answer Key

1. Four numbers are shown.

π	$\sqrt{8}$	$0.\overline{23}$	$\sqrt{49}$
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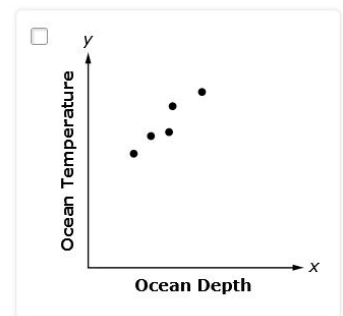
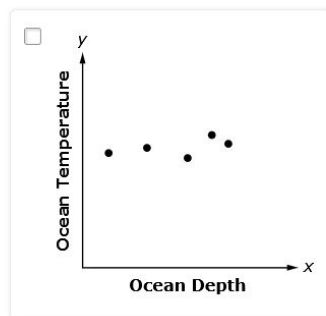
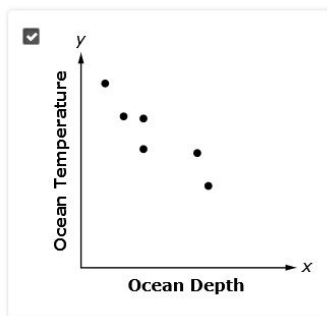
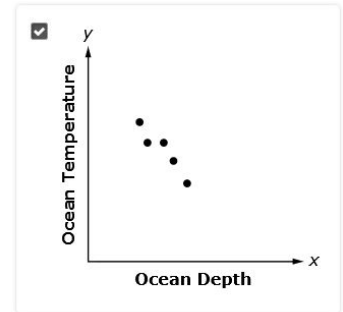
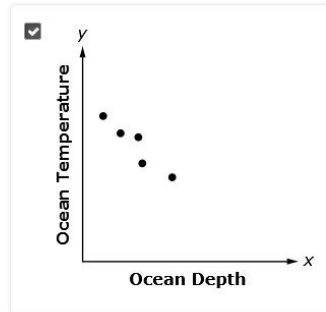
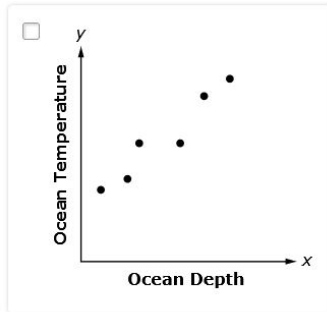
Complete the statement explaining which two numbers are rational.

The two rational numbers are and because they
 be expressed as a ratio of two integers.

FAST Mathematics Sample Items Answer Key

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.

FAST Mathematics Sample Items Answer Key

3. An expression is shown.

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

What is the value of the expression?

$6\frac{7}{8}$

$7\frac{1}{8}$

$48\frac{7}{8}$

$49\frac{1}{8}$

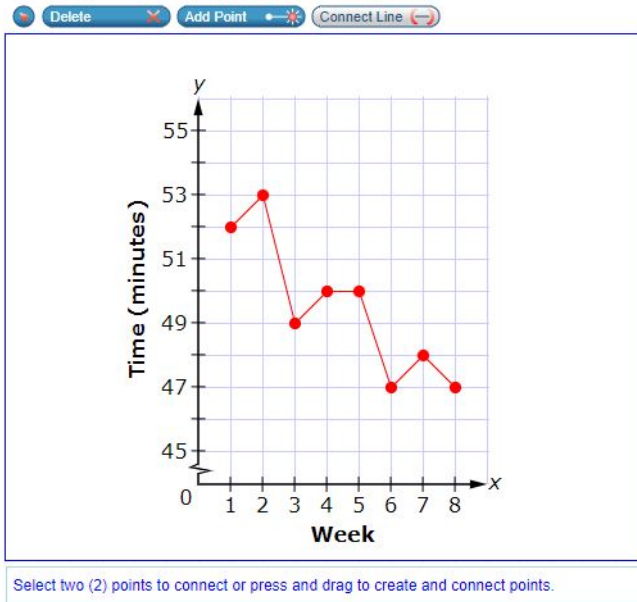
Option A: This answer is correct. The student correctly determined the value of the expression to be $\frac{55}{8}$ or $6\frac{7}{8}$.

FAST Mathematics Sample Items Answer Key

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.



FAST Mathematics Sample Items Answer Key

- 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.

×

Other correct responses: any equivalent expression in scientific notation

FAST Mathematics Sample Items Answer Key

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

	No Solutions	One Solution	Infinitely Many Solutions
$3x - 5 = 3(x - 2) + 1$	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
$3x - 5 = -9x + 15$	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
$3x - 5 = 3x + 10$	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

FAST Mathematics Sample Items Answer Key

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.

$y = -3x + 15$

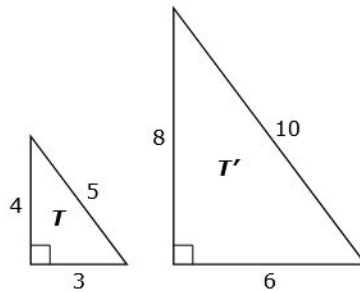
The interface includes a text input field containing the equation $y = -3x + 15$. Below the field is a toolbar with navigation and editing icons (left arrow, right arrow, undo, redo, and clear). The main area is a grid of buttons for mathematical input:

- Row 1: 1, 2, 3, x, y, and three empty cells.
- Row 2: 4, 5, 6, +, -, •, ÷, and two empty cells.
- Row 3: 7, 8, 9, <, ≤, =, ≥, >, and one empty cell.
- Row 4: an empty cell, 0, another empty cell, a power button (□[□]), a parentheses button (□), a double vertical line button (||), a square root button (√□), a nth root button (∛□), and π.
- Row 5: a decimal point button (.), a negative sign button (-), and a fraction button (□/□).

Other correct responses: any equivalent equation

FAST Mathematics Sample Items Answer Key

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 to triangle T' .

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

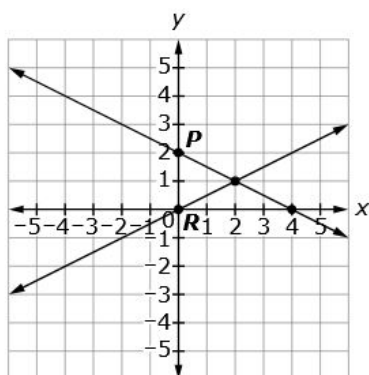
FAST Mathematics Sample Items Answer Key

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?

- (A) Her solutions are correct.
- (B) She marked the y -intercepts instead of the x -intercepts.
- (C) She marked the y -intercepts instead of the intersection point of the two lines.
- (D) She marked only the y -intercepts instead of the x - and y -intercepts.

Part B

What is a solution to the system of equations?

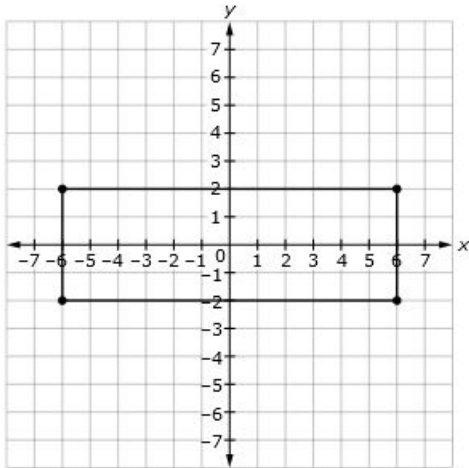
(2 , 1)

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

FAST Mathematics Sample Items Answer Key

10. A figure on a coordinate plane is shown.



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

- translation up 4 units
- reflection across the y -axis
- dilation by a factor of 3 about the origin
- rotation 90 degrees clockwise about the origin
- 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.

FAST Mathematics Sample Items Answer Key

11. An expression is shown.

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

Enter values to complete the product of the expression.

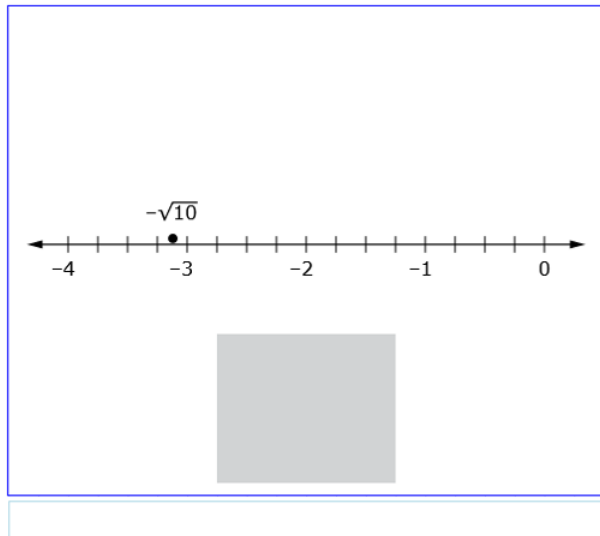
$$3.38 \text{ } x^2 + 5.2 \text{ } x$$

←	→	↶	↷	✖
1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

Other correct responses: any equivalent values

FAST Mathematics Sample Items Answer Key

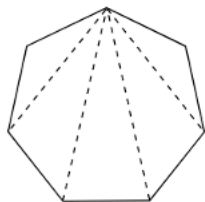
- 12.** Drag the point onto the number line to show the approximate location of $-\sqrt{10}$.



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

FAST Mathematics Sample Items Answer Key

- 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.

$$(7 - 5) \times 90$$

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