

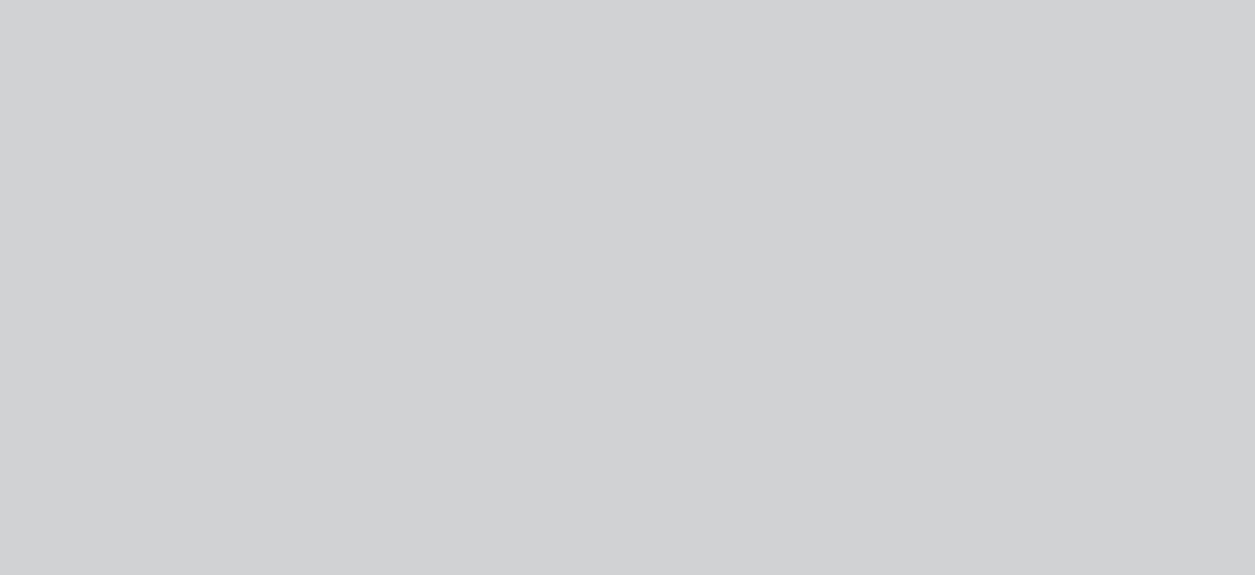


F S A
ELA & Mathematics
Assessments

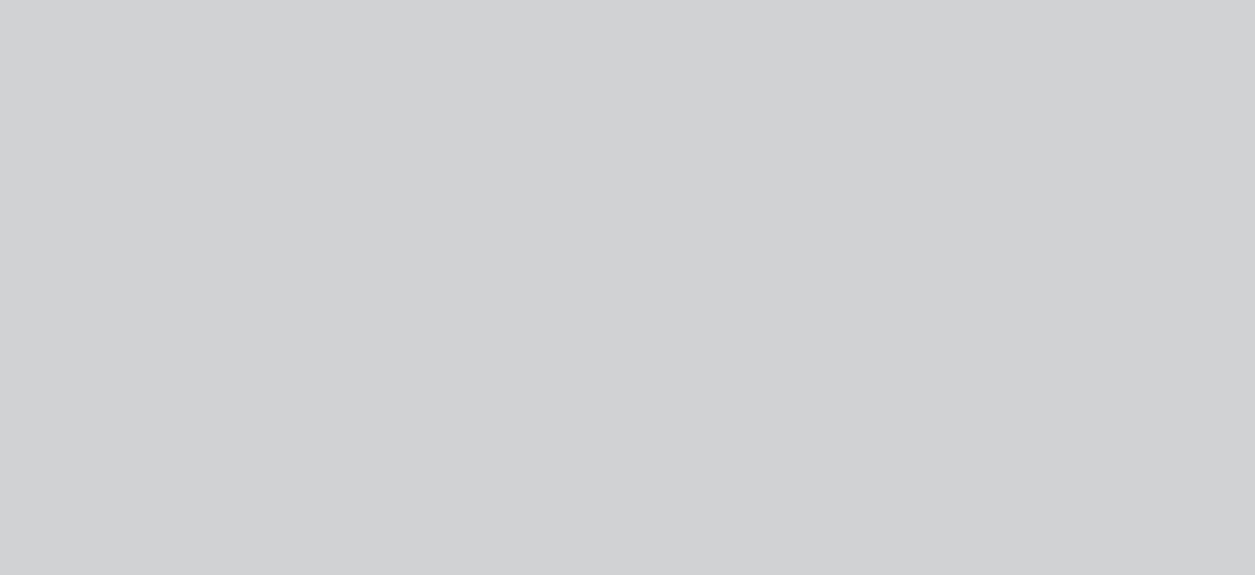
Grade 8
FSA Mathematics
Practice Test Answer Key

The Grade 8 FSA Mathematics Practice Test Answer Key provides the correct response(s) for each item on the practice test. The practice questions 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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Session 1



1. An expression is shown.

$$\frac{(4 \times 10^{-5}) + (2 \times 10^{-5})}{(3 \times 10^7)}$$

Which expression is equivalent?

- Ⓐ 2×10^{-17}
- Ⓑ 2×10^{-12}
- Ⓒ 2×10^{-2}
- Ⓓ 2×10^{12}

-
2. Select all the sequences of transformations that always maintain congruence.
- a reflection and then a translation
 - a translation and then a rotation
 - a rotation and then a reflection
 - a dilation and then a reflection
 - a rotation and then a dilation
 - a translation and then a dilation

3. An equation is shown.

$$3^m \cdot 3^n = 3^{-2}$$

What are possible values for m and n ?

$$m =$$

$$n =$$

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

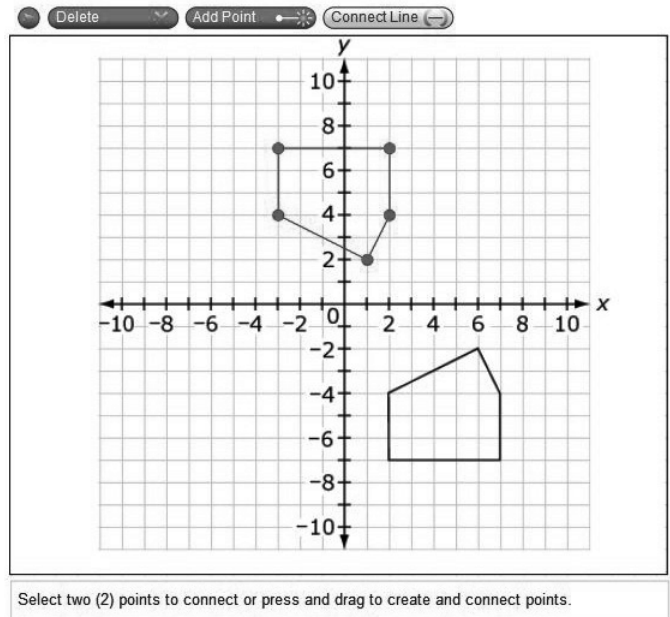
Other correct responses: any values for m and n such that $m + n = -2$

4.

A pentagon is shown.

The pentagon is translated 5 units to the left and then reflected over the x -axis.

Use the Connect Line tool to draw the pentagon after its transformations.



Other correct responses: the intermediate step of a pentagon with vertices at $(-3, -7)$, $(-3, -4)$, $(1, -2)$, $(2, -4)$, and $(2, -7)$

5. Create a table of values to show a relation that is **not** a function.

x	y
-2	-1
-2	-4
0	-7

Other correct responses: any set where at least two identical inputs have different outputs

6. Determine whether each number is rational or irrational.

	Rational	Irrational
$\sqrt{81}$	<input checked="" type="checkbox"/>	<input type="checkbox"/>
$\sqrt{89}$	<input type="checkbox"/>	<input checked="" type="checkbox"/>
$\sqrt{121}$	<input checked="" type="checkbox"/>	<input type="checkbox"/>
$\sqrt{131}$	<input type="checkbox"/>	<input checked="" type="checkbox"/>

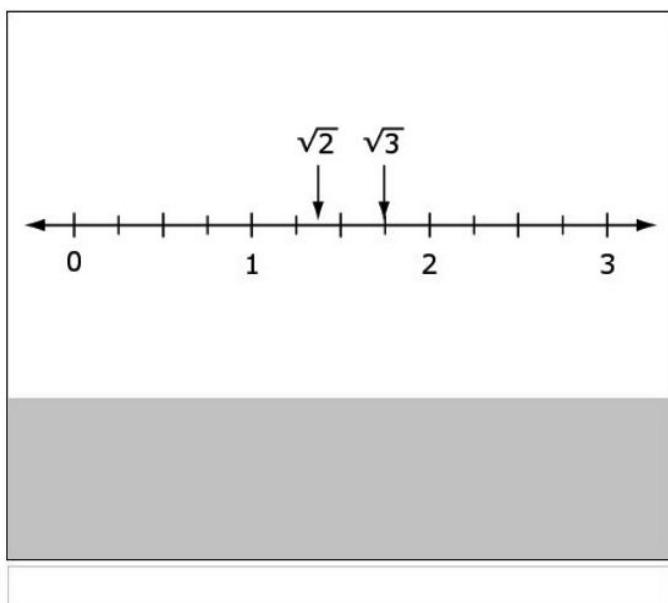
7. The average mass of an ant is approximately 3×10^{-3} grams. The average mass of a giraffe is approximately 2×10^3 kilograms.

About how many times more mass does a giraffe have than an ant?

66666667				
←	→	↶	↷	✖
1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

Other correct responses: any value in the range of 600 million to 700 million

8. Drag the numbers shown to their approximate locations on the number line.



Session 1

FSA Mathematics Practice Test Answer Key

9. A rental car company has a linear pricing plan. The total cost, C , to rent a car for 2, 4, 6, and 10 days, d , is shown.

Days (d)	Total Cost (C)
2	\$105
4	\$195
6	\$285
10	\$465

- A. What is the daily rate for the pricing plan?
- B. Write an equation that represents the pricing plan.

A.

B.

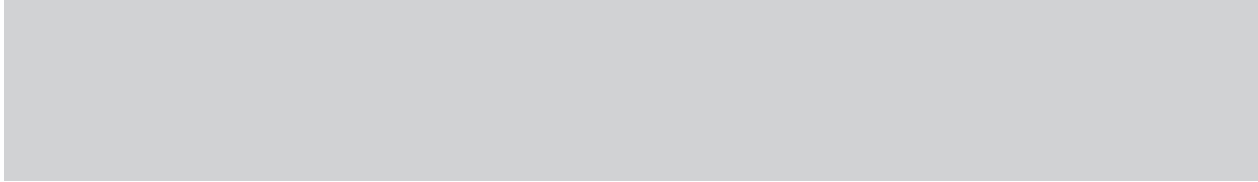
The calculator interface includes a top row with navigation buttons (left, right, undo, redo, clear). Below is a grid of buttons:

1	2	3	d	C				
4	5	6	+	-	•	÷		
7	8	9	<	≅	=	√	>	
	0		\square^{\square}	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π
.	-	$\frac{\square}{\square}$						

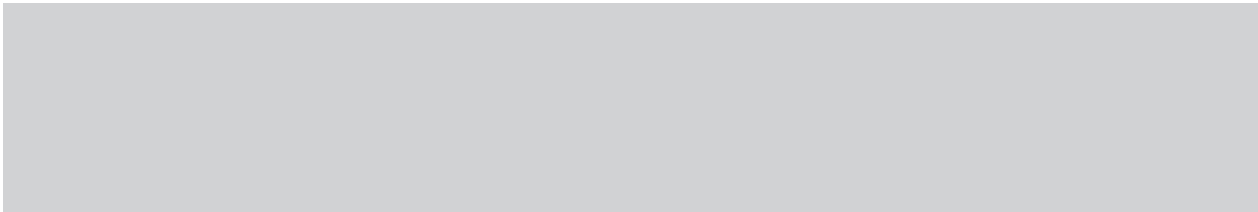
Other correct responses: for part B, any equivalent equation

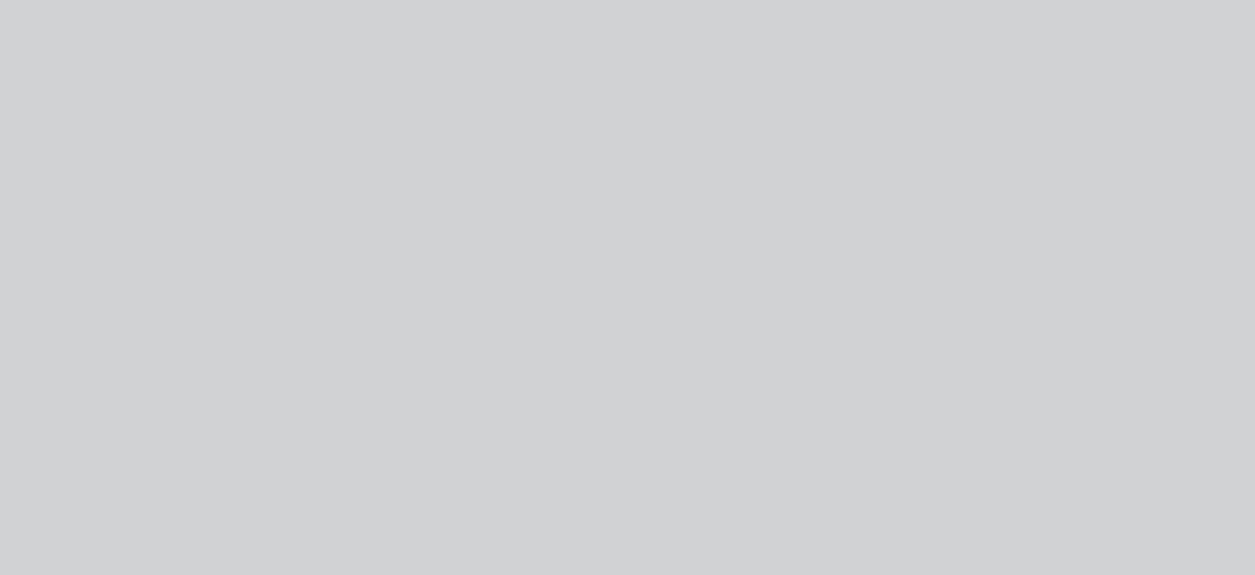
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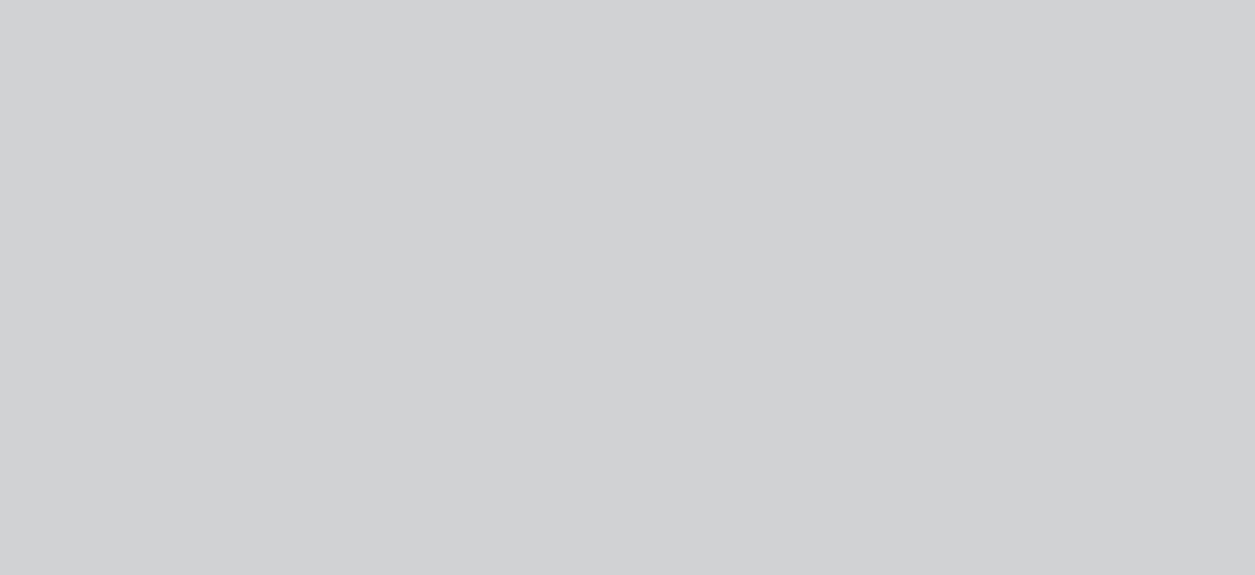


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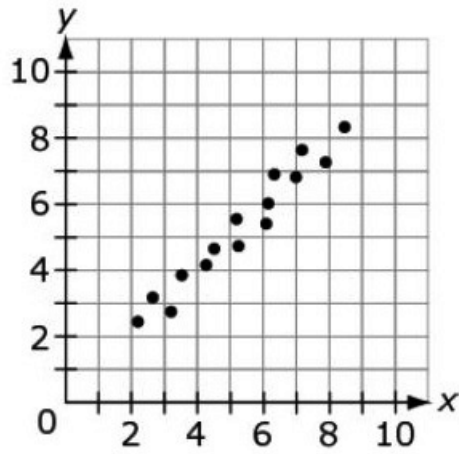




Session 2



10. A scatter plot is shown.



Which statement is true for the scatter plot?

- Ⓐ The data show no association.
- Ⓑ The data show a positive correlation.
- Ⓒ The data show a negative correlation.
- Ⓓ The data show a nonlinear association.

11. Select the number of solutions for each system of two linear equations.

	Zero Solutions	One Solution	Infinitely Many Solutions
$2x + 2y = 3$ $4x + 4y = 6$	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
$7x + 5y = 8$ $7x + 7y = 8$	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
$-2x + 3y = 7$ $2x - 3y = -7$	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>

13. Which sequence of transformations results in figures that are similar but not congruent?

- Ⓐ 90° clockwise rotation, translation 5 units to the left
- Ⓑ reflection across the x -axis, dilation with a factor of $\frac{1}{2}$
- Ⓒ translation 3 units down, reflection across the y -axis
- Ⓓ reflection across the x -axis, translation 7 units to the left

14.

Two collinear points are given in the table.

Give a third point that is also on this line.

x	y
0	0
4	-3
-4	3

Other correct responses: any coordinate pair that satisfies the equation

$$y = -\frac{3}{4}x$$

- 15.** The amount of money Alan earns as a plumber after x hours is modeled by the equation $y = \$25x + \50 .

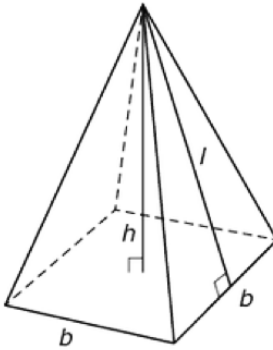
What is the meaning of \$25 in this model?

Hourly rate of pay

Other correct responses include:

- *hourly rate*
- *amount he earns per hour*
- *amount he charges per hour*

16. A right square pyramid is shown.



The base has a side length, b , of 30 centimeters (cm). The height, h , is 10 cm.

What is the length, in centimeters, of l ?

$\sqrt{325}$									
← → ↶ ↷ ✕									
1	2	3	+	-	•	÷			
4	5	6	<	≤	=	≥	>		
7	8	9	\square^\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π	
	0								
.	-	\square_\square							

Other correct responses: any expression with a value between 18 and 18.03

17. The function $y = 3.50x + 2$ represents the total amount of money, y , saved over x weeks.

What is true about the function?

- Ⓐ It is linear because it is always increasing.
- Ⓑ It is linear because it increases at a constant rate.
- Ⓒ It is nonlinear because it is always increasing.
- Ⓓ It is nonlinear because it increases at a constant rate.

18. A cone has a height of 6.4 inches and a diameter of 6 inches.

What is the volume, in cubic inches, of the cone? Use 3.14 for π .

60.288				
←	→	↶	↷	✖
1	2	3		
4	5	6		
7	8	9		
	0			
.	-	$\frac{\square}{\square}$		

19. Select whether each equation has no solution, one solution, or infinitely many solutions.

	No Solution	One Solution	Infinitely Many Solutions
$3x = 3x + 4$	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
$3x + 4 = 3x + 4$	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
$3x + 4 = 4x + 3$	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

20. Select three side lengths, in centimeters (cm), that can form a right triangle.

- 5 cm
- 6 cm
- 8 cm
- 10 cm
- 11 cm
- 12 cm

- 21.** Five hundred students were asked whether they prefer apple juice or orange juice. The table shown displays the results.

	Apple Juice	Orange Juice	Total
Boys	30	100	
Girls	210	160	
Total			

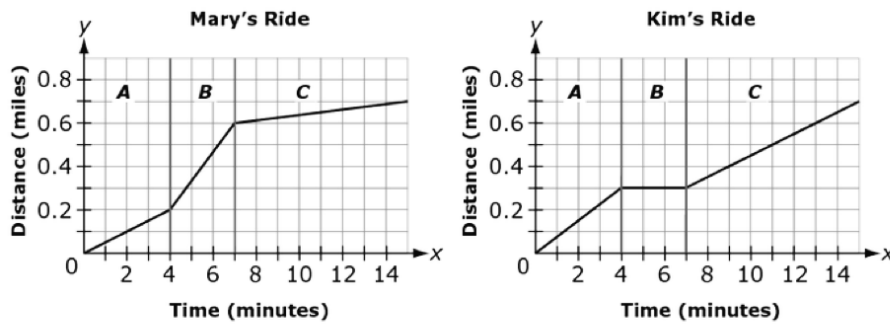
How many more girls were surveyed than boys?

240

← → ↶ ↷ ✖

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

22. Mary and Kim each take 15 minutes to ride their bikes to school. The graphs of the functions that model their rides are shown, where x is the time, in minutes, and y is the distance, in miles.

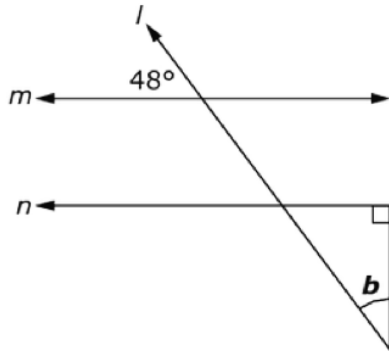


The graphs are divided into time intervals A , B , and C .

Use the graphs to match each statement with the appropriate person or people.

	Mary	Kim
rode her bike fastest in interval A , as compared to the rest of her ride	<input type="checkbox"/>	<input checked="" type="checkbox"/>
stopped for an interval of time	<input type="checkbox"/>	<input checked="" type="checkbox"/>
rode slower in interval C than in interval B	<input checked="" type="checkbox"/>	<input type="checkbox"/>
lives 0.7 miles from school	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

23. A figure with parallel lines m and n is shown.



What is the measure, in degrees, of $\angle b$?

42		
←	→	✖
1	2	3
4	5	6
7	8	9
	0	
.	-	□ □

24.

A tub that holds 18 liters of water fills with 2 liters of water every 2.5 minutes.

- A. Use the Add Arrow tool to create a graph that models the situation for the first 5 minutes.
- B. At what rate is the tub filling with water? Drag symbols to the circle and numbers to the boxes to show the rate.

Delete
Add Point
Add Arrow

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

A.

Water in Tub

B.

Rate: $\frac{4}{5}$

Select two (2) points to connect with the arrow.

Other correct responses: For part A, any graph with a slope of $\frac{4}{5}$; for part B, the positive symbol is not required.

25. What is the distance, in units, between A (−1, 3) and B (3, 5)?

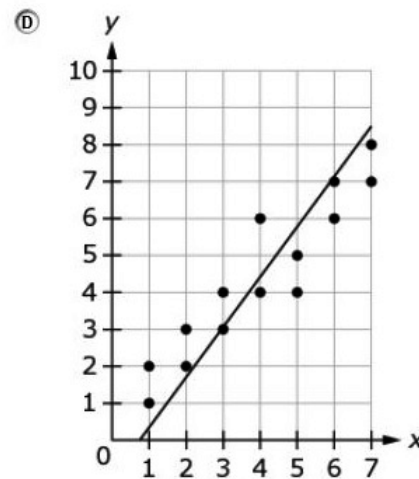
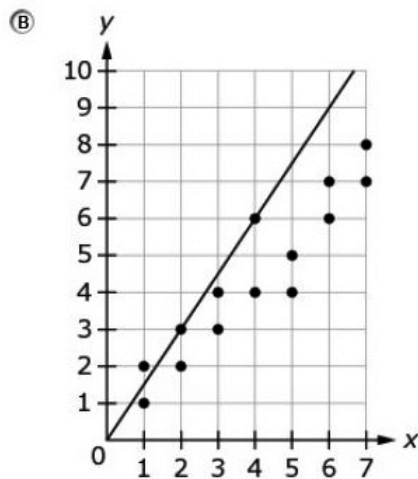
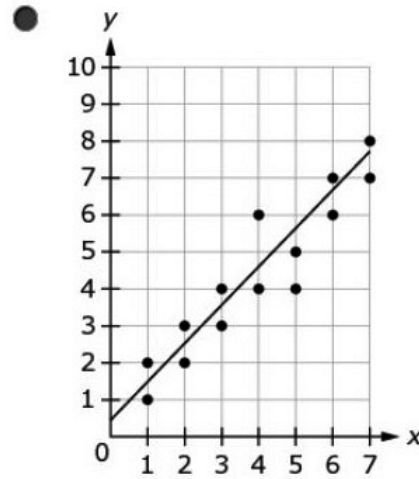
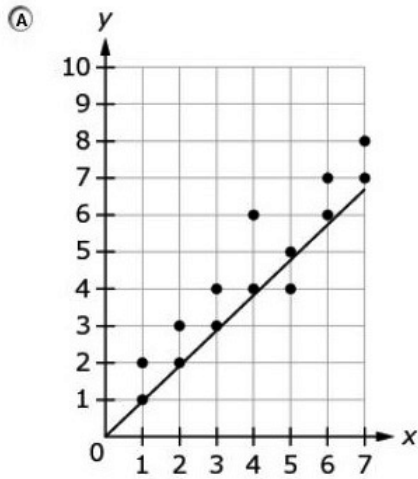
$\sqrt{20}$

← → ↶ ↷ ✖

1	2	3	+	-	•	÷		
4	5	6	<	≤	=	≥	>	
7	8	9	\square^{\square}	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π
	0							
.	-	$\frac{\square}{\square}$						

Other correct responses: any expression with a value between 4.47 and 4.5

26. Which graph represents the line of best fit for the scatter plot?



27. A square is cut in half on the diagonal, creating two equal triangles. Each triangle has an area of 0.32 square units.

What is the side length, in units, of the original square?

0.8

← → ↶ ↷ ✖

1	2	3
4	5	6
7	8	9
	0	
.	-	$\frac{\square}{\square}$

28. Kayden creates a linear function where x is the input, y is the output, and m and b are constants.

A. Which equation could represent Kayden's function?

- $y = \frac{1}{x} + mb$
- $y = mx + b$
- $x = my \cdot by$

B. Which statement about the graph of Kayden's function is true for all values of m and b ?

- The graph is increasing.
- The graph is decreasing.
- The graph goes through the origin.
- The graph has a constant rate of change.

29. This question has **two** parts.

Suzie’s Plumbing uses a linear model to determine the total cost, in dollars, of a service call.

Part A. Using the table below, create an equation to represent the linear model that Suzie’s Plumbing uses to determine the total cost, C , in terms of hours worked, h .

Hours Worked (h)	Total Cost (C)
2	\$110
3	\$145
6	\$250
8	\$320

$C=35h+40$

← → ↶ ↷ ✕

1	2	3	C	h				
4	5	6	+	-	•	÷		
7	8	9	<	≤	=	≥	>	
	0		\square^\square	()		$\sqrt{\square}$	$\sqrt[\square]{\square}$	π
.	-	$\frac{\square}{\square}$						

Other correct responses: any equivalent equation

Part B. Select the phrases and values to make accurate statements about the service fee and the hourly charge.

The one-time fee is represented by the **initial value** of the function and is **\$40.**

The hourly charge is represented by the **rate of change** of the function and is **\$35** per hour.

- 30.** The manager of an ice cream shop is considering which ice cream flavor to offer as the special flavor next month. She asks 175 people whether they like mint or strawberry ice cream.

The two-way table shows the results.

	Like Mint	Do Not Like Mint	Total
Like Strawberry	30	75	105
Do Not Like Strawberry	56	14	70
Total	86	89	175

The manager wants to increase sales, so she is deciding whether to offer mint or strawberry ice cream.

Complete the sentence to support the **best** decision based on the relative frequencies in the table.

The manager should offer ice cream because of the customers surveyed like mint and of the customers like strawberry.

- 31.** A water container in the shape of a cone has a height of 5 inches and a diameter of 3.5 inches.

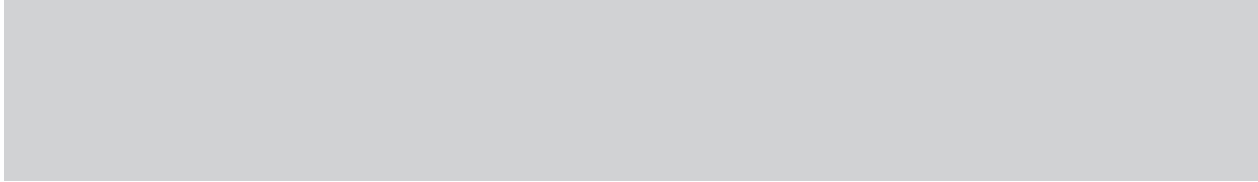
Enter an equation in the first blank box and a number in the second blank box to complete the statements about the water container.

- A. The formula to calculate the container's volume, V , with the given measurements is $V = \pi(1.75)^2\left(\frac{5}{3}\right)$.

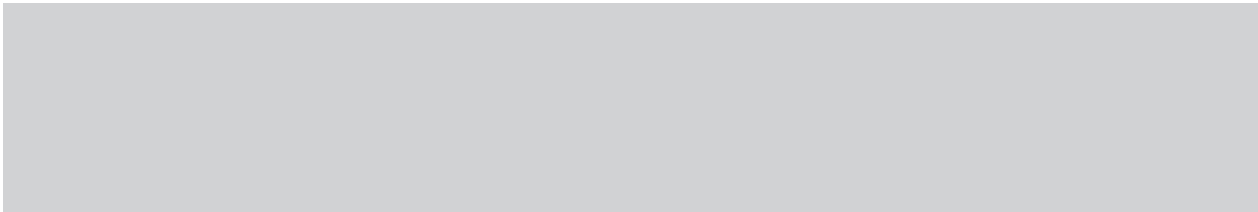
Other correct responses: any equivalent equation

- B. The container can hold approximately 16.04 cubic inches of water. Round your answer to the nearest hundredth.

Other correct responses: any equivalent value using π , 3.14, or $\frac{22}{7}$



This is the end of Session 2.



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