Grade 8 FAST Mathematics

Test Release: 2025

Introduction

Section 1008.22(8), Florida Statutes (F.S.), requires the Department to publish each statewide, standardized assessment administered, excluding retakes, at least once on a triennial basis, with the initial publication occurring after the Spring 2024 test administration. The initial publication of assessments was required to include, at a minimum, the grade 3 Mathematics and English Language Arts (ELA) Reading assessments, the grade 10 ELA Reading assessment and the Algebra 1 End-of-Course (EOC) Assessment. Per statute, released content must have appeared on tests in the administration year immediately preceding release. Based on those requirements, below is a proposed timeline for the release of operational tests beginning with the 2023–24 school year.

June 2024	June 2025	June 2026
Grade 3 Mathematics & ELA Reading	Grade 5 Mathematics & ELA Reading	Grade 4 Mathematics & ELA Reading
Grade 6 Mathematics & ELA Reading	Grade 8 Mathematics & ELA Reading	Grade 7 Mathematics & ELA Reading
Grade 8 Science	Grade 5 Science	Biology 1 EOC
Grade 10 ELA Reading	Grade 9 ELA Reading	
Algebra 1 EOC	Geometry EOC	
Civics EOC	U.S. History EOC	
Annually: Grades 4–10 Writing prompts and individual student responses		

The purpose of the released tests is to promote transparency in the statewide, standardized assessment program and to increase the comfort level of students and parents with the state assessments. Students, parents, and teachers should use the released tests to better understand the types of items on Florida's K–12 statewide assessments.

Each released test will include content that represents an operational test blueprint for each respective assessment. The released tests can also be used to illustrate the length of an operational test and the range of difficulties of the questions on that test.

Each released test will include an answer key, the percentage of students that answered that item correctly, the item's reporting category, and the item benchmark information.

Released tests can be accessed through the Sample Items card on the Florida Statewide Assessments Portal.

For more information about K–12 assessments, please visit https://www.fldoe.org/accountability/assessments/k-12-student-assessment/.

For questions related to this document or released tests in general, please contact Assessment@fldoe.org.

1. Which expression is equivalent to $(x^4y^5)^3$?

Ⓐ $x^4y^{5\cdot3}$

Ⓑ x^4y^{5+3}

Ⓒ $x^{4\cdot3}y^{5\cdot3}$

Ⓓ $x^{4+3}y^{5+3}$

Answer Key: C

Percentage of Students Answering Correctly: 45%

Reporting Category: Algebraic Reasoning

Benchmark: MA.8.AR.1.1

Benchmark Description: Apply the Laws of Exponents to generate equivalent algebraic expressions, limited to integer exponents and monomial bases.

2. Which set of numbers could be possible side lengths, in units, of a right triangle?

Ⓐ 3, 4, 5

Ⓑ 5, 5, 5

Ⓒ 5, 5, 7

Ⓓ 5, 8, 10

Answer Key: A

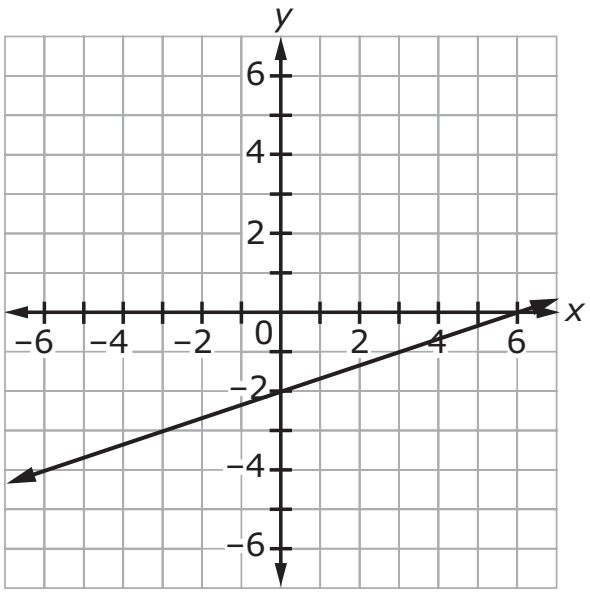
Percentage of Students Answering Correctly: 35%

Reporting Category: Geometric Reasoning

Benchmark: MA.8.GR.1.3

Benchmark Description: Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of sides. Use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of sides.

3. A graph of a line is shown.



What is the equation of the line?

Ⓐ $y = \frac{1}{3}x - 2$

Ⓑ $y = \frac{1}{3}x + 2$

Ⓒ $y = 3x - 2$

Ⓓ $y = 3x + 2$

Answer Key: A

Percentage of Students Answering Correctly: 43%

Reporting Category: Linear Relationships, Data Analysis and Functions

Benchmark: MA.8.AR.3.3

Benchmark Description: Given a table, graph or written description of a linear relationship, write an equation in slope-intercept form.

4. Three values are shown.

$$\sqrt[3]{9},\ \frac{\pi}{2},\ 2$$

Identify the least and greatest values.

	$\sqrt[3]{9}$	$\frac{\pi}{2}$	2
Least	Ⓐ	Ⓑ	Ⓒ
Greatest	Ⓓ	Ⓔ	Ⓕ

Answer Key: B, D

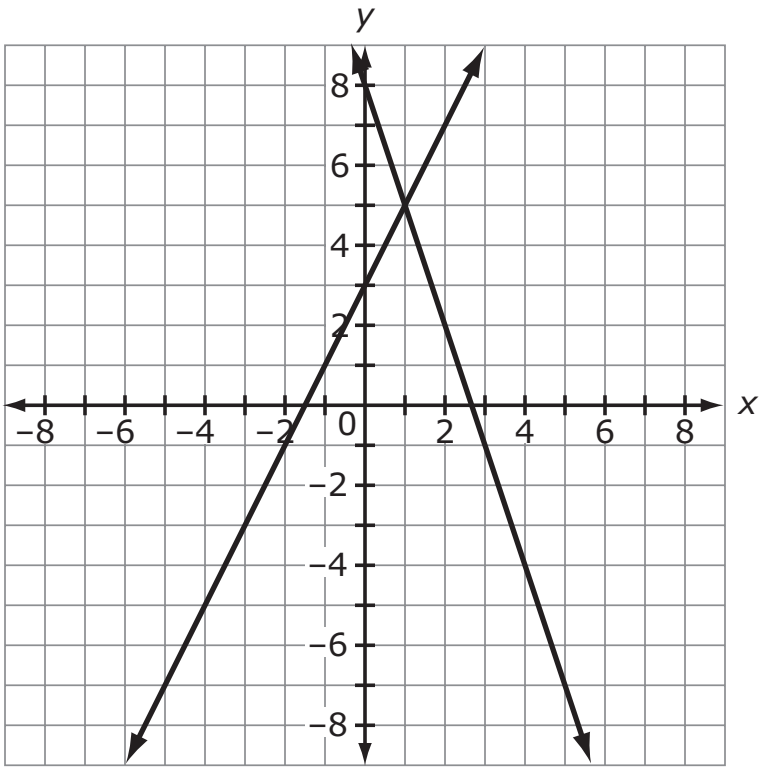
Percentage of Students Answering Correctly: 32%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.NSO.1.2

Benchmark Description: Plot, order and compare rational and irrational numbers, represented in various forms.

5. A system of equations is represented by the lines shown on the graph.



How many solutions does the system of equations have?

Ⓐ no solutions

Ⓑ one solution

Ⓒ two solutions

Ⓓ infinitely many solutions

Answer Key: B

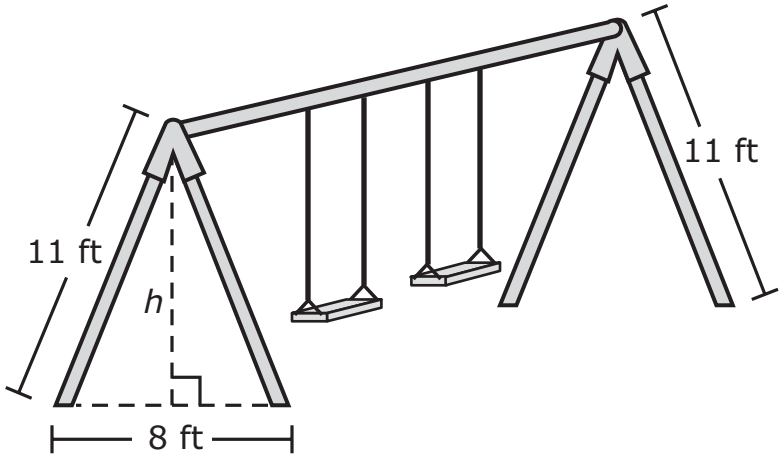
Percentage of Students Answering Correctly: 53%

Reporting Category: Algebraic Reasoning

Benchmark: MA.8.AR.4.2

Benchmark Description: Given a system of two linear equations represented graphically on the same coordinate plane, determine whether there is one solution, no solution or infinitely many solutions.

6. A swing set is shown, with dimensions in feet (ft).



What is the height, *h*, of the swing set?

Ⓐ 57 ft

Ⓑ 105 ft

Ⓒ $\sqrt{57}$ ft

Ⓓ $\sqrt{105}$ ft

Answer Key: D

Percentage of Students Answering Correctly: 25%

Reporting Category: Geometric Reasoning

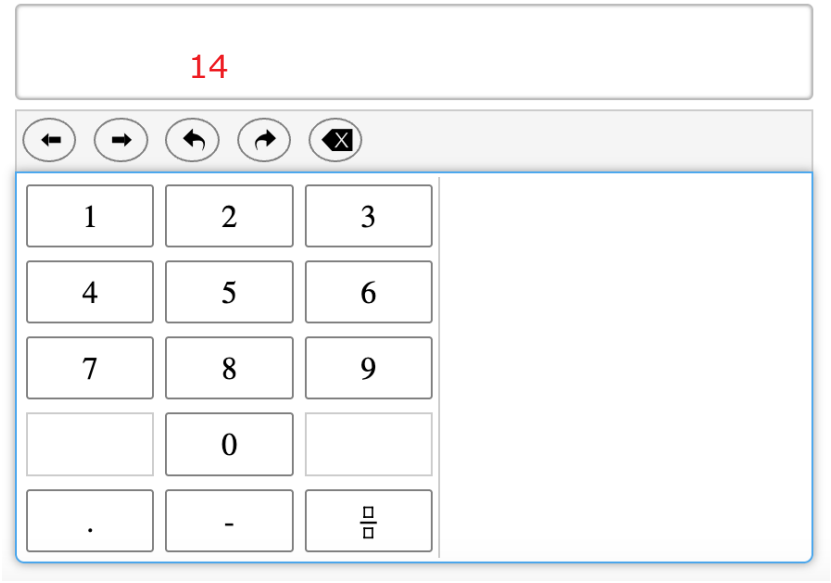
Benchmark: MA.8.GR.1.1

Benchmark Description: Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.

7. An expression is shown.

$$\sqrt{75 \div 3} + \left(\frac{1}{3}\right)^{-2}$$

What is the value of the expression?



Answer Key: 14, or any equivalent value

Percentage of Students Answering Correctly: 25%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.NSO.1.7

Benchmark Description: Solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals.

8. Which expression is equivalent to $(7pq)(9p^5q)$?

Ⓐ $16p^5q$

Ⓑ $63p^5q$

Ⓒ $16p^6q^2$

Ⓓ $63p^6q^2$

Answer Key: D

Percentage of Students Answering Correctly: 25%

Reporting Category: Algebraic Reasoning

Benchmark: MA.8.AR.1.1

Benchmark Description: Apply the Laws of Exponents to generate equivalent algebraic expressions, limited to integer exponents and monomial bases.

9. The two figures shown are congruent.

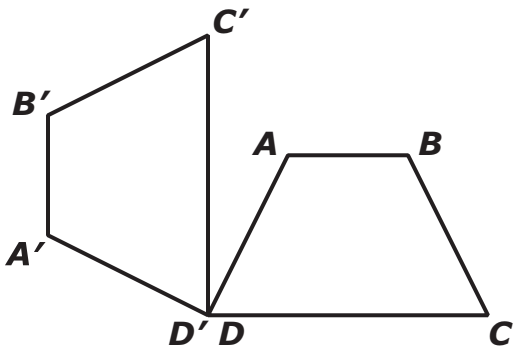


Figure *ABCD* is transformed to create figure *A′ B′ C′ D′*. Vertices *D* and *D′* are located on the same point.

Complete the sentence about the single transformation of figure *ABCD*.

Figure *ABCD* can be rotated [Ⓐ 90 Ⓑ 180 Ⓒ 270 Ⓓ 360] degrees [Ⓐ clockwise Ⓑ counterclockwise] about point *D* to create figure *A′ B′ C′ D′.*

Answer Key: A, B, combination of C and A are also accepted

Percentage of Students Answering Correctly: 38%

Reporting Category: Geometric Reasoning

Benchmark: MA.8.GR.2.1

Benchmark Description: Given a preimage and image generated by a single transformation, identify the transformation that describes the relationship.

10. Which value **best** approximates $-3 + \sqrt{68}$?

Ⓐ 5.2

Ⓑ 8.1

Ⓒ 8.4

Ⓓ 11.2

Answer Key: A

Percentage of Students Answering Correctly: 60%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.NSO.1.1

Benchmark Description: Extend previous understanding of rational numbers to define irrational numbers within the real number system. Locate an approximate value of a numerical expression involving irrational numbers on a number line.

11. Select all the expressions with a value greater than 6.

Ⓐ 2π

Ⓑ $\sqrt{17}$

Ⓒ $\sqrt{40}$

Ⓓ $\sqrt[3]{100}$

Ⓔ $\sqrt[3]{350}$

Answer Key: A, C, E

Percentage of Students Answering Correctly: 35%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.NSO.1.2

Benchmark Description: Plot, order and compare rational and irrational numbers, represented in various forms.

12. Which table shows *y* as a function of *x*?

Ⓐ

x	1	2	3	4
y	5	8	8	14

Ⓑ

x	1	2	1	2
y	5	8	11	14

Ⓒ

x	2	2	3	4
y	5	8	8	14

Ⓓ

x	2	2	2	2
y	5	8	11	14

Answer Key: A

Percentage of Students Answering Correctly: 39%

Reporting Category: Linear Relationships, Data Analysis and Functions

Benchmark: MA.8.F.1.1

Benchmark Description: Given a set of ordered pairs, a table, a graph or mapping diagram, determine whether the relationship is a function. Identify the domain and range of the relation.

13. A fair coin is tossed twice.

What is the probability that the coin lands tails up both times?

Ⓐ 25%
Ⓑ 33%
Ⓒ 50%
Ⓓ 75%

Answer Key: A

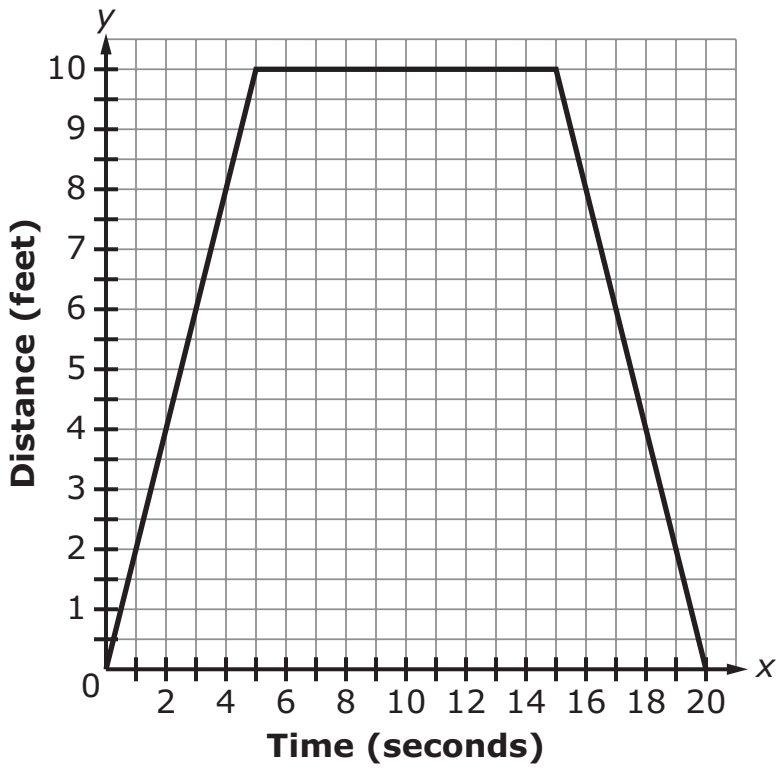
Percentage of Students Answering Correctly: 32%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.DP.2.2

Benchmark Description: Find the theoretical probability of an event related to a repeated experiment.

14. The graph shows the distance, y, in feet, that Mackenzie is from her home after walking for x seconds.



Identify whether Mackenzie's distance from home is constant, increasing, or decreasing over the given intervals.

	Constant	Increasing	Decreasing
from $x = 0$ to $x = 5$	Ⓐ	Ⓑ	Ⓒ
from $x = 5$ to $x = 15$	Ⓓ	Ⓔ	Ⓕ
from $x = 15$ to $x = 20$	Ⓖ	Ⓗ	Ⓘ

Answer Key: B, D, I

Percentage of Students Answering Correctly: 60%

Reporting Category: Linear Relationships, Data Analysis and Functions

Benchmark: MA.8.F.1.3

Benchmark Description: Analyze a real-world written description or graphical representation of a functional relationship between two quantities and identify where the function is increasing, decreasing or constant.

15. Which value is equivalent to 5^{-3}?

Ⓐ -125

Ⓑ $-\frac{1}{125}$

Ⓒ $\frac{1}{125}$

Ⓓ 125

Answer Key: C

Percentage of Students Answering Correctly: 36%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.NSO.1.3

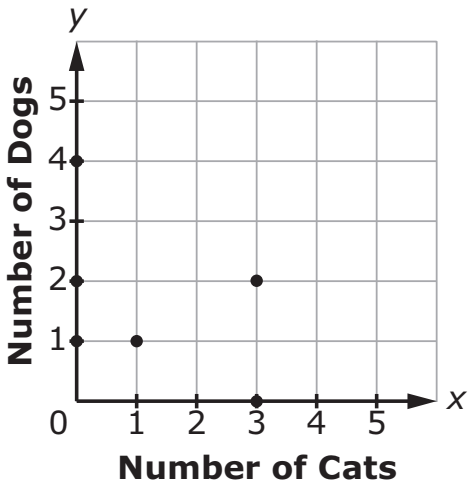
Benchmark Description: Extend previous understanding of the Laws of Exponents to include integer exponents. Apply the Laws of Exponents to evaluate numerical expressions and generate equivalent numerical expressions, limited to integer exponents and rational number bases, with procedural fluency.

16. The table shows the number of cats and dogs that six students have.

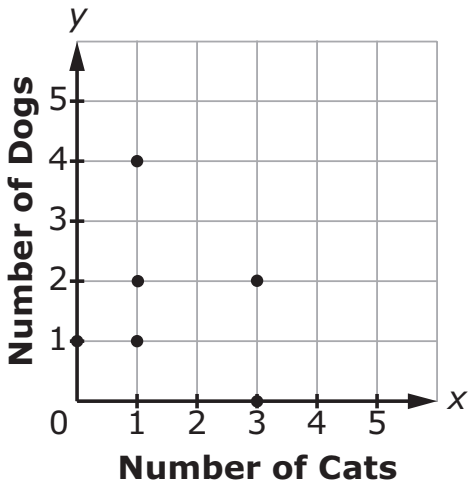
Number of Cats	Number of Dogs
0	1
0	2
0	4
1	1
3	0
3	2

Which scatter plot correctly displays the data?

Ⓐ



Ⓒ



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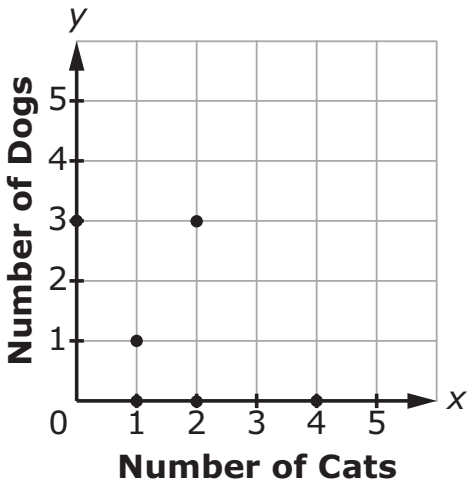
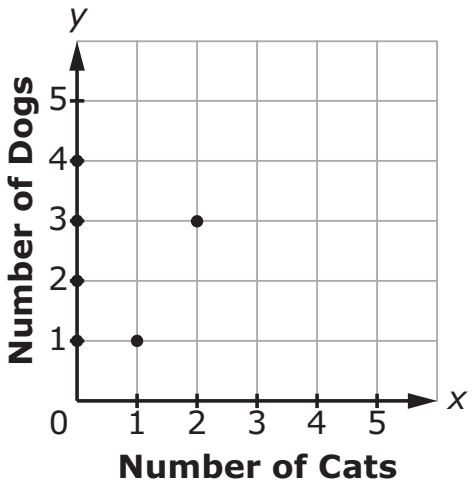


Ⓓ



Answer Key: A

Percentage of Students Answering Correctly: 62%

Reporting Category: Linear Relationships, Data Analysis and Functions

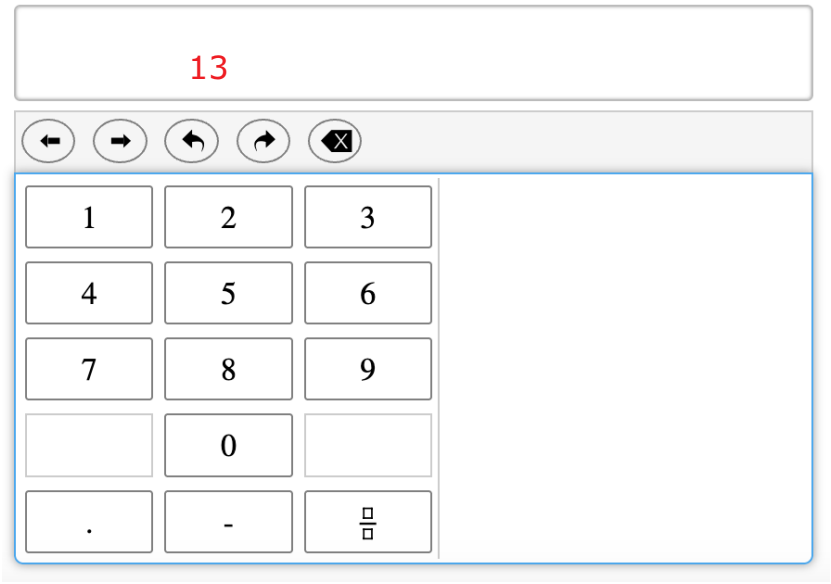
Benchmark: MA.8.DP.1.1

Benchmark Description: Given a set of real-world bivariate numerical data, construct a scatter plot or a line graph as appropriate for the context.

17. An equation is shown.

$$x^2 = 169$$

What is a value of x?



Answer Key: 13 or –13, or any equivalent values

Percentage of Students Answering Correctly: 58%

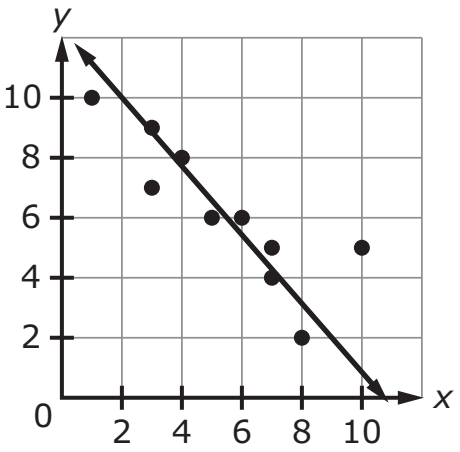
Reporting Category: Algebraic Reasoning

Benchmark: MA.8.AR.2.3

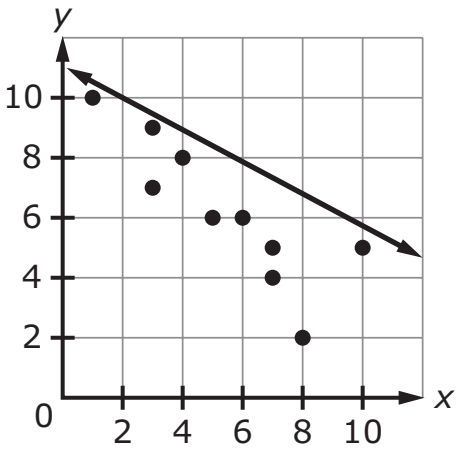
Benchmark Description: Given an equation in the form of x^2=p and x^3=q, where p is a whole number and q is an integer, determine the real solutions.

18. Which scatter plot shows a line that appropriately fits the data?

Ⓐ



Ⓒ



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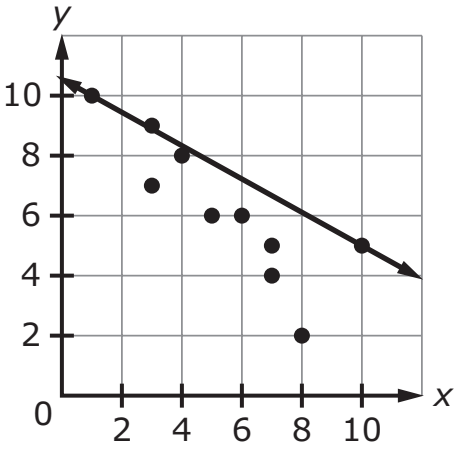
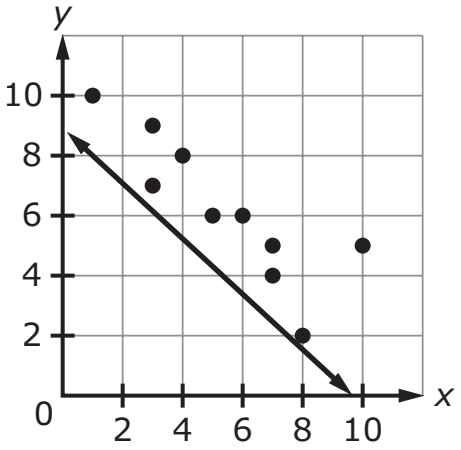


Ⓓ



Answer Key: A

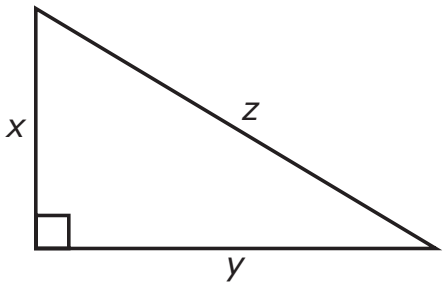
Percentage of Students Answering Correctly: 81%

Reporting Category: Linear Relationships, Data Analysis and Functions

Benchmark: MA.8.DP.1.3

Benchmark Description: Given a scatter plot with a linear association, informally fit a straight line.

19. The right triangle shown has side lengths of x, y, and z units.



Which equation correctly relates the side lengths of the triangle?

Ⓐ $x + y = z$

Ⓑ $2x + 2y = 2z$

Ⓒ $x^2 + y^2 = z^2$

Ⓓ $(x + y)^2 = z^2$

Answer Key: C

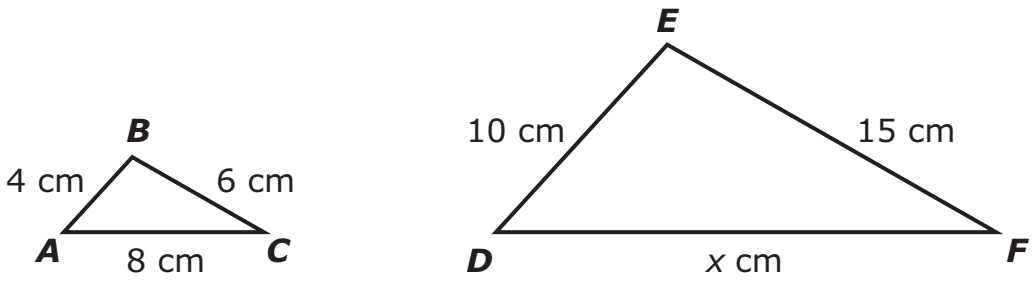
Percentage of Students Answering Correctly: 51%

Reporting Category: Geometric Reasoning

Benchmark: MA.8.GR.1.1

Benchmark Description: Apply the Pythagorean Theorem to solve mathematical and real-world problems involving unknown side lengths in right triangles.

20. Triangle *ABC* is similar to triangle *DEF*. The sides of each triangle are measured in centimeters (cm), as shown.



Which equation can be used to find the value of *x*?

Ⓐ $\frac{4}{6}=\frac{8}{x}$

Ⓑ $\frac{4}{6}=\frac{10}{x}$

Ⓒ $\frac{6}{8}=\frac{15}{x}$

Ⓓ $\frac{6}{8}=\frac{x}{15}$

Answer Key: C

Percentage of Students Answering Correctly: 42%

Reporting Category: Geometric Reasoning

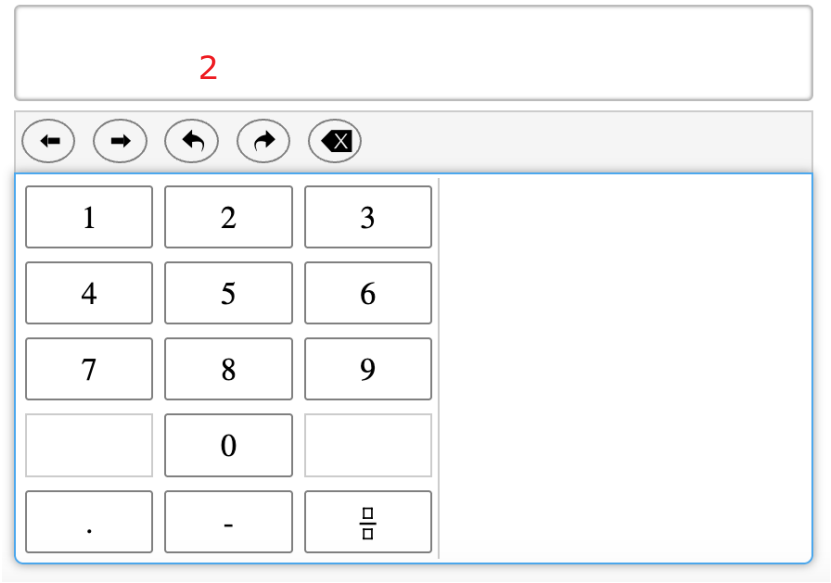
Benchmark: MA.8.GR.2.4

Benchmark Description: Solve mathematical and real-world problems involving proportional relationships between similar triangles.

21. An expression is shown.

$$\frac{1}{4}\sqrt{5^2 + 39}$$

What is the value of the expression?



Answer Key: 2, or any equivalent value

Percentage of Students Answering Correctly: 39%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.NSO.1.7

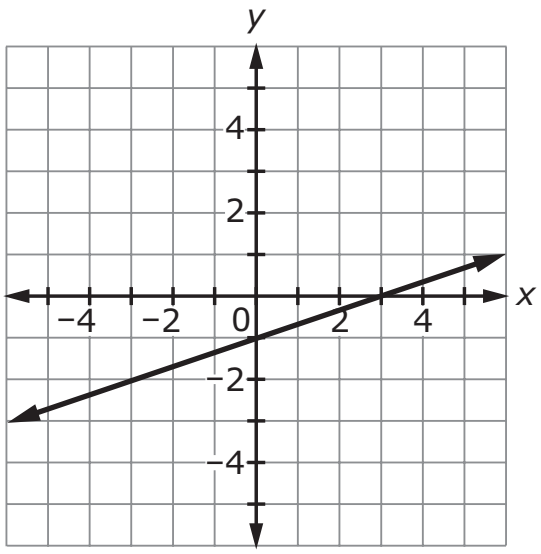
Benchmark Description: Solve multi-step mathematical and real-world problems involving the order of operations with rational numbers including exponents and radicals.

22. An equation is shown.

$$y = -\frac{1}{3}x - 1$$

Which graph represents this equation?

Ⓐ



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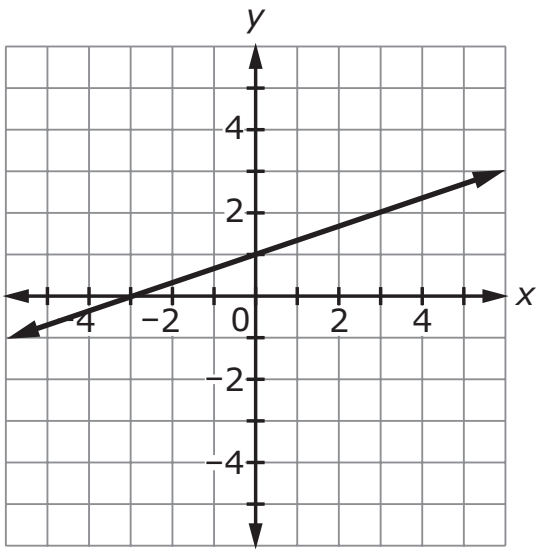

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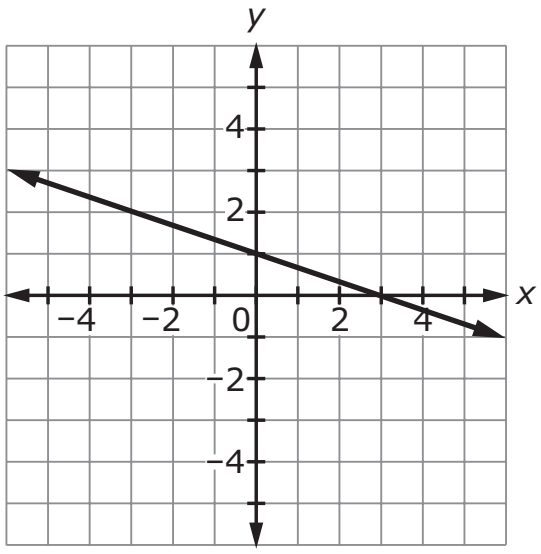

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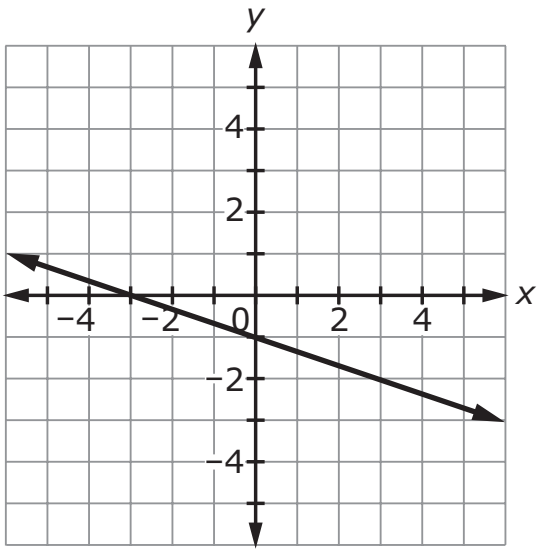


Answer Key: D

Percentage of Students Answering Correctly: 41%

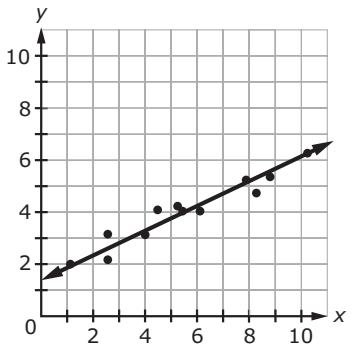
Reporting Category: Linear Relationships, Data Analysis and Functions

Benchmark: MA.8.AR.3.4

Benchmark Description: Given a mathematical or real-world context, graph a two-variable linear equation from a written description, a table or an equation in slope-intercept form.

23. Select all the scatter plots that show a line that appropriately fits the data.

Ⓐ



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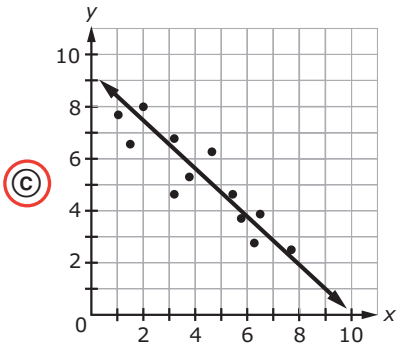

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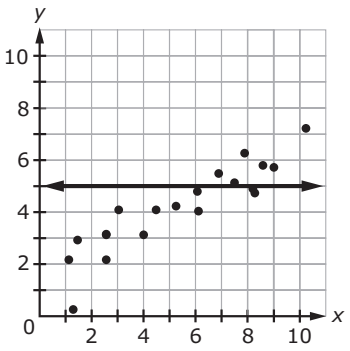

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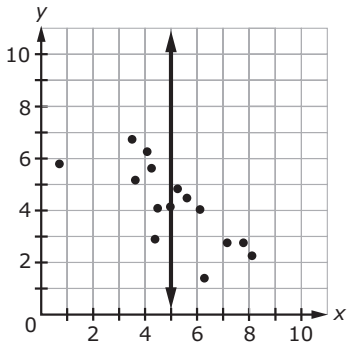

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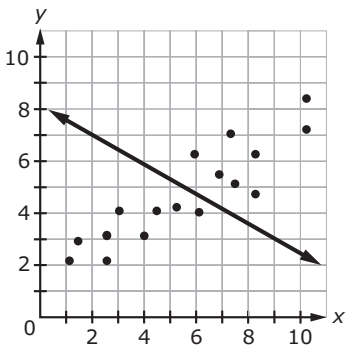


Answer Key: A, C

Percentage of Students Answering Correctly: 63%

Reporting Category: Linear Relationships, Data Analysis and Functions

Benchmark: MA.8.DP.1.3

Benchmark Description: Given a scatter plot with a linear association, informally fit a straight line.

24. Complete the equation to show the quotient in scientific notation.

$(8.4 \times 10^9) \div (2.4 \times 10^3) =$ ☐ $\times 10^{\square}$

$(8.4 \times 10^9) \div (2.4 \times 10^3) =$ 3.5

$\times 10$ 6

Answer Key: $(8.4 \times 10^9) \div (2.4 \times 10^3) = 3.5 \times 10^6$, or any equivalent values of 3.5 and 6

Percentage of Students Answering Correctly: 22%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.NSO.1.5

Benchmark Description: Add, subtract, multiply and divide numbers expressed in scientific notation with procedural fluency.

25. Charlie has a spinner with three equally sized sections. The sections are colored red (R), blue (B), and yellow (Y). He spins the spinner arrow 2 times.

What is the sample space for the experiment that has equally likely outcomes?

Ⓐ {R, B, Y}

Ⓑ {RR, RB, RY, BB, BY, YY}

Ⓒ {RB, RY, BR, BY, YR, YB}

Ⓓ {RR, RB, RY, BB, BR, BY, YY, YR, YB}

Answer Key: D

Percentage of Students Answering Correctly: 40%

Reporting Category: Number Sense and Operations and Probability

Benchmark: MA.8.DP.2.1

Benchmark Description: Determine the sample space for a repeated experiment.

26. Some points on a line are shown in the table.

x	0	2	4
y	0	−2	−4

What is the slope of the line?

Ⓐ −2

Ⓑ −1

Ⓒ 0

Ⓓ 1

Answer Key: B

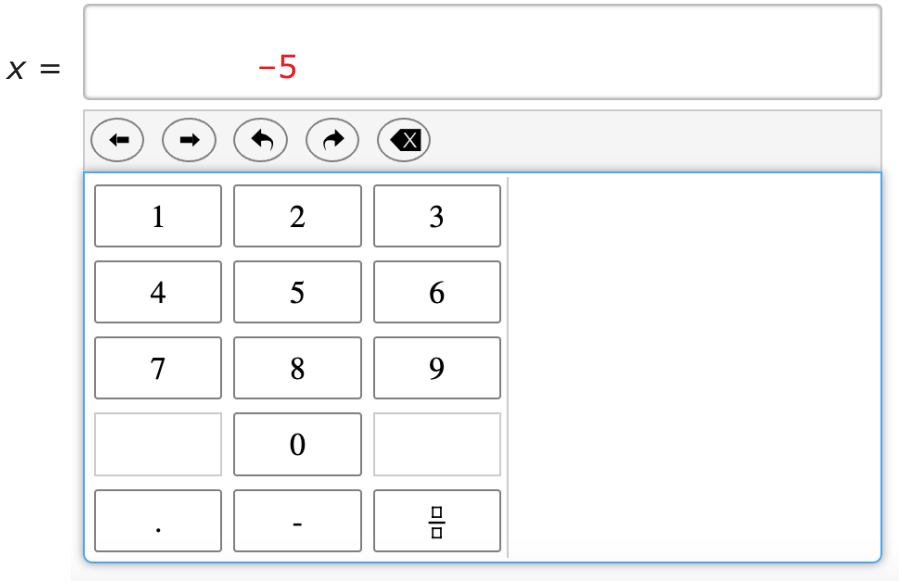
Percentage of Students Answering Correctly: 26%

Reporting Category: Linear Relationships, Data Analysis and Functions

Benchmark: MA.8.AR.3.2

Benchmark Description: Given a table, graph or written description of a linear relationship, determine the slope.

27. What is the value of x in $x^3 = -125$?



Answer Key: –5, or any equivalent value

Percentage of Students Answering Correctly: 38%

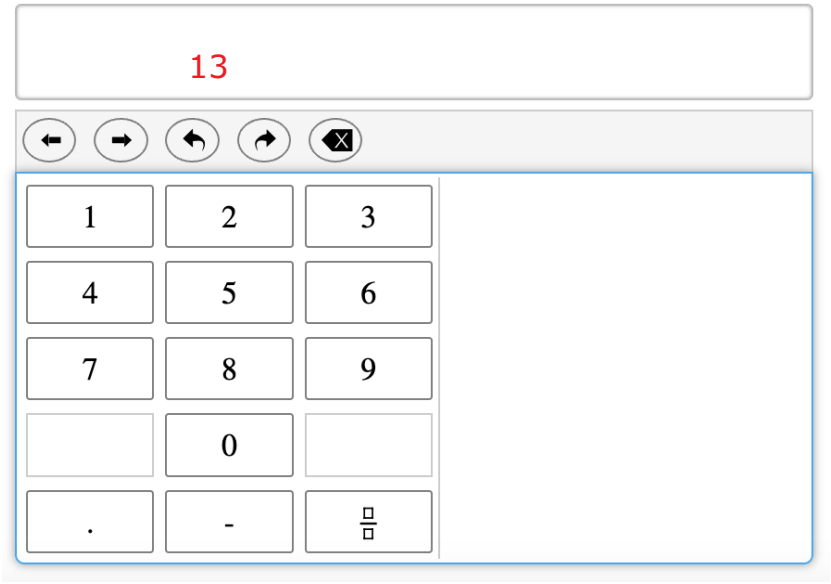
Reporting Category: Algebraic Reasoning

Benchmark: MA.8.AR.2.3

Benchmark Description: Given an equation in the form of x^2=p and x^3=q, where p is a whole number and q is an integer, determine the real solutions.

28. Two side lengths of a triangle are 15 inches and 3 inches.

What is a possible length, in inches, of the third side?



Answer Key: 13, or any value between 12 and 18, exclusively

Percentage of Students Answering Correctly: 28%

Reporting Category: Geometric Reasoning

Benchmark: MA.8.GR.1.3

Benchmark Description: Use the Triangle Inequality Theorem to determine if a triangle can be formed from a given set of sides. Use the converse of the Pythagorean Theorem to determine if a right triangle can be formed from a given set of sides.

29. Select all the solutions to $x^3 = 64$.

Ⓐ -8

Ⓑ -4

Ⓒ 4

Ⓓ 8

Ⓔ $\sqrt{64}$

Ⓕ $\sqrt[3]{64}$

Answer Key: C, F

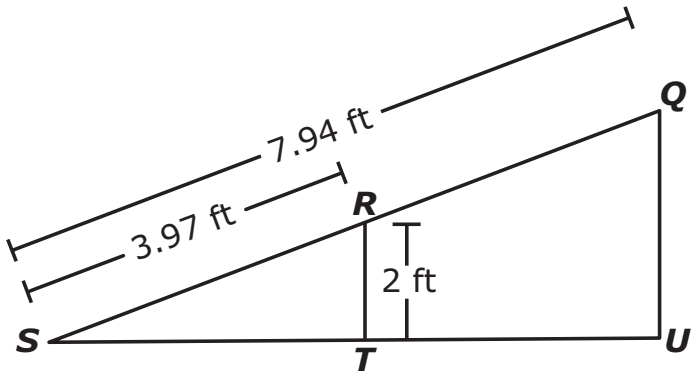
Percentage of Students Answering Correctly: 26%

Reporting Category: Algebraic Reasoning

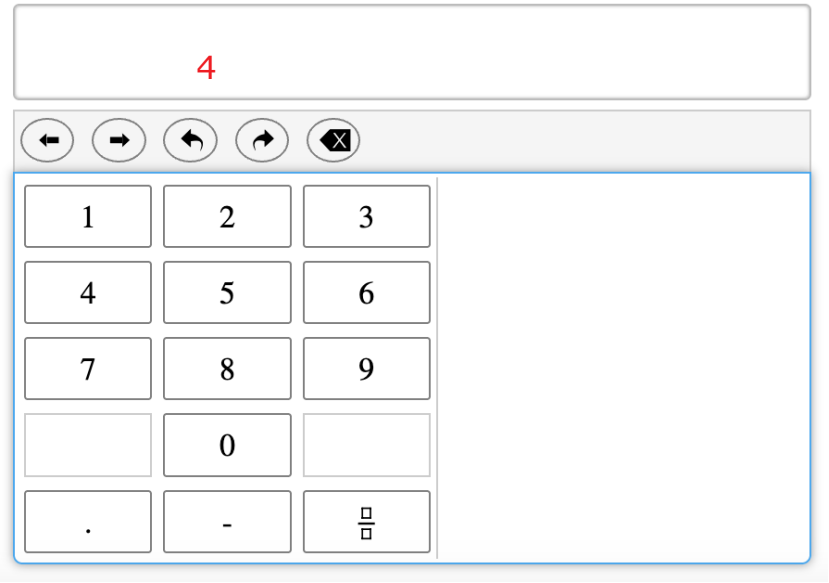
Benchmark: MA.8.AR.2.3

Benchmark Description: Given an equation in the form of x^2=p and x^3=q, where p is a whole number and q is an integer, determine the real solutions.

30. Triangle *QSU* and triangle *RST* are similar. The triangles are shown with side lengths in feet (ft).



What is the length, in feet, of $\overline{QU}$?



Answer Key: 4, or any equivalent value

Percentage of Students Answering Correctly: 27%

Reporting Category: Geometric Reasoning

Benchmark: MA.8.GR.2.4

Benchmark Description: Solve mathematical and real-world problems involving proportional relationships between similar triangles.

31. Match the equivalent expressions.

	$3x^2$	$9x^4$
$\frac{3x^4}{x^2}$	Ⓐ	Ⓑ
$(3x^2)^2$	Ⓒ	Ⓓ
$\frac{9x^7}{3x^5}$	Ⓔ	Ⓕ

Answer Key: A, D, E

Percentage of Students Answering Correctly: 44%

Reporting Category: Algebraic Reasoning

Benchmark: MA.8.AR.1.1

Benchmark Description: Apply the Laws of Exponents to generate equivalent algebraic expressions, limited to integer exponents and monomial bases.

32. A game center has an entrance fee and a fixed cost per game. When Sal visits the game center, he models his total cost, y, to play x games with the equation shown.

$$y = 1.5x + 10$$

What does the slope represent in this situation?

Ⓐ the cost to play each game

Ⓑ the cost of the entrance fee

Ⓒ the total number of games played

Ⓓ the total cost to visit the game center

Answer Key: A

Percentage of Students Answering Correctly: 38%

Reporting Category: Linear Relationships, Data Analysis and Functions

Benchmark: MA.8.AR.3.5

Benchmark Description: Given a real-world context, determine and interpret the slope and y-intercept of a two-variable linear equation from a written description, a table, a graph or an equation in slope-intercept form.

33. Which expression is equivalent to $(15.4 + 7p)(5.6p)$?

Ⓐ $15.4 + (7p)(5.6p)$

Ⓑ $(15.4)(5.6p) + 7p$

Ⓒ $(15.4)(5.6p) \times (7p)(5.6p)$

Ⓓ $(15.4)(5.6p) + (7p)(5.6p)$

Answer Key: D

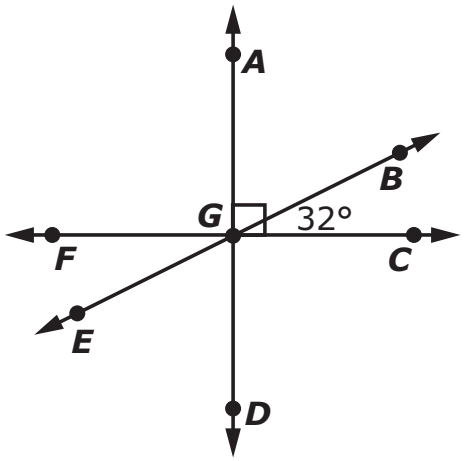
Percentage of Students Answering Correctly: 21%

Reporting Category: Algebraic Reasoning

Benchmark: MA.8.AR.1.2

Benchmark Description: Apply properties of operations to multiply two linear expressions with rational coefficients.

34. A figure is shown with three lines passing through point *G*.



Match each angle to its measure.

	32°	58°	90°
∠ *AGB*	Ⓐ	Ⓑ	Ⓒ
∠ *FGE*	Ⓓ	Ⓔ	Ⓕ
∠ *AGF*	Ⓖ	Ⓗ	Ⓘ

Answer Key: B, D, I

Percentage of Students Answering Correctly: 55%

Reporting Category: Geometric Reasoning

Benchmark: MA.8.GR.1.4

Benchmark Description: Solve mathematical problems involving the relationships between supplementary, complementary, vertical or adjacent angles.

35. An inequality is shown.

$$\frac{1}{6}x + \frac{1}{5} > \frac{8}{15}$$

What is the solution to the inequality?

Ⓐ $x < 2$

Ⓑ $x > 2$

Ⓒ $x > \frac{1}{18}$

Ⓓ $x < \frac{1}{18}$

Answer Key: B

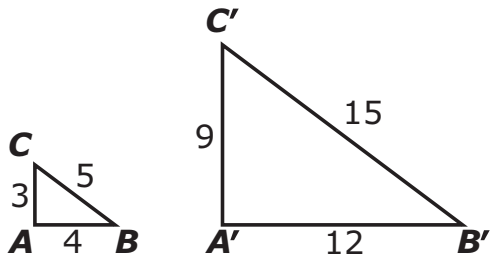
Percentage of Students Answering Correctly: 31%

Reporting Category: Algebraic Reasoning

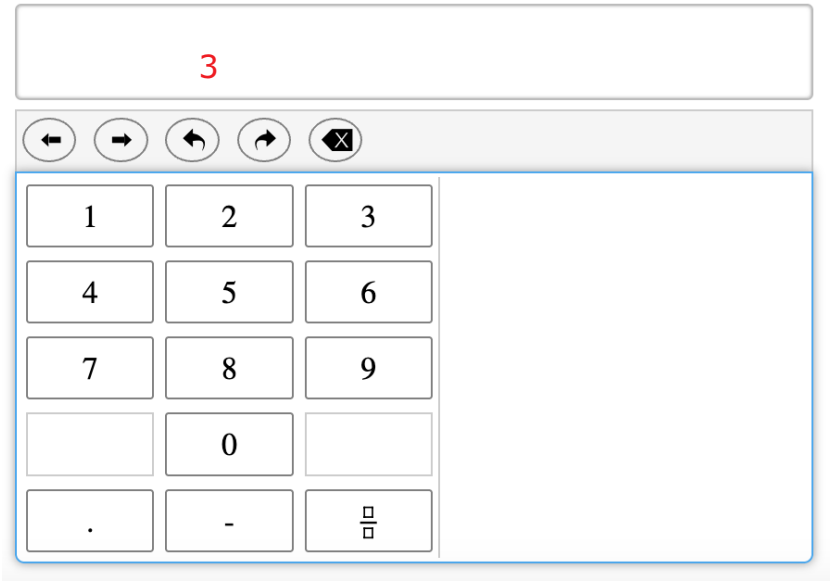
Benchmark: MA.8.AR.2.2

Benchmark Description: Solve two-step linear inequalities in one variable and represent solutions algebraically and graphically.

36. Triangle *ABC* is dilated to create triangle *A′ B′ C′.* The triangles, with side lengths in units, are shown.



What scale factor was used to dilate triangle *ABC*?



Answer Key: 3, or any equivalent value

Percentage of Students Answering Correctly: 46%

Reporting Category: Geometric Reasoning

Benchmark: MA.8.GR.2.2

Benchmark Description: Given a preimage and image generated by a single dilation, identify the scale factor that describes the relationship.

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