

May 4th & May 5th
Standards Practice

①

Complete the statements to describe the outcomes of operations with the following numbers.

- a and b are non-zero rational numbers.
- x and y are irrational numbers.

Select the word that best completes each statement. To select a word, click the menu and then click the desired word. To choose a different word, click the menu and click the new word.

• Sometimes

$a + b$ is rational. • always $x \cdot y$ is irrational.

• never

$a + x$ is rational. $b \cdot x$ is irrational.

②

Match the equation in the left column to the description of the slope and y -intercept of its graph in the right column. To connect an equation to a description, click an equation in the left column and then a description in the right column, and a line will automatically be drawn between them. To remove a connection, hold the pointer over the line until it turns red, and then click it. Each equation in the left column matches to exactly two descriptions in the right column. Each description in the right column can connect to one and only one equation in the left column.

$$3x - 2y = 8$$

$$2x + 3y = 12$$

$$3y + 6 = 2x$$

$$\text{slope} = -\frac{2}{3}$$

$$\text{slope} = \frac{2}{3}$$

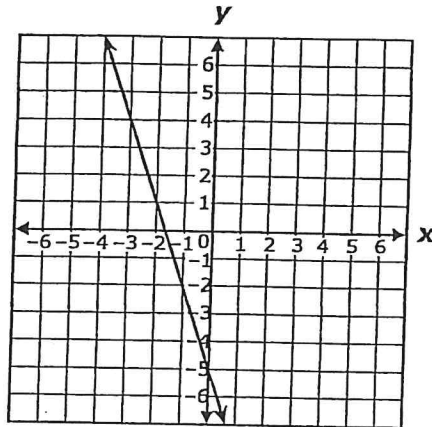
$$\text{slope} = \frac{3}{2}$$

$$y\text{-intercept} = -4$$

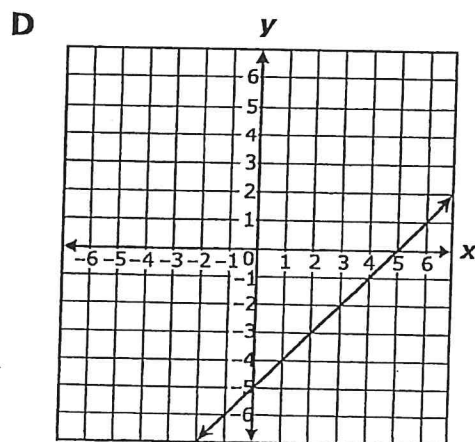
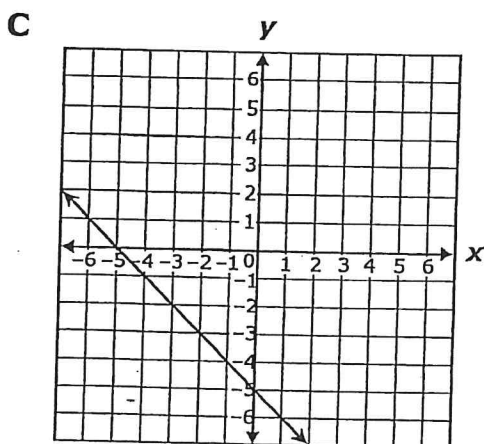
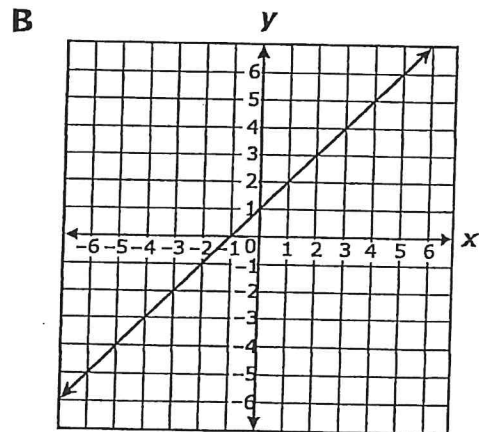
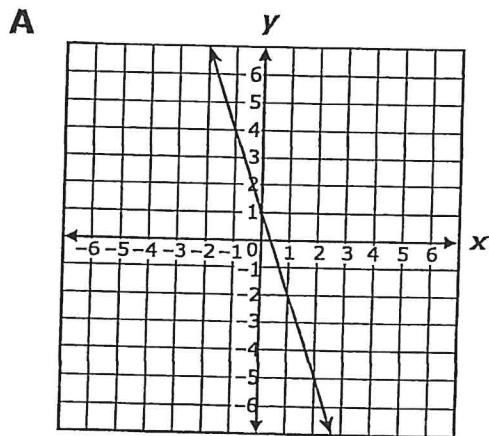
$$y\text{-intercept} = -2$$

$$y\text{-intercept} = 4$$

3 The graph of the equation $y = -3x - 5$ is shown below.



Which best represents the graph of the equation $y = -3x - 5$ when the slope is changed to 1 and the y-intercept remains the same?



4

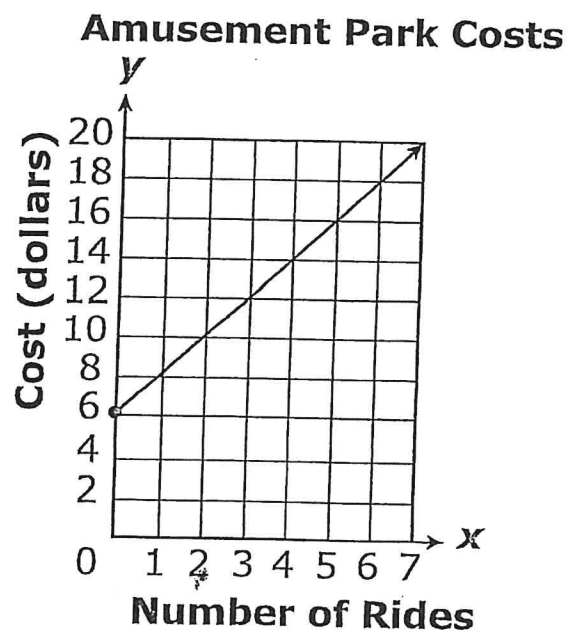
x	y
-7	-12
-5	-8
-3	-4
-1	0
1	4

Which statement best describes the values of x and y in the table?

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- B As the value of x increases by 2, the value of y decreases by 4.
- C As the value of x increases by 4, the value of y increases by 2.
- D As the value of x increases by 4, the value of y decreases by 2.

5

When planning a trip to the local amusement park, Leah drew a graph to show her possible costs.



Based on the graph, what is the cost per ride?

- A \$1.00
- B \$2.00
- C \$2.60
- D \$6.00

6

Complete these equations. Select the numbers you want to choose and drag and drop them into the boxes. To drag a number, click and hold it, and then drag to the desired box. To change a number, click and hold it, then drag it back to the desired box. You may use each number once, more than once, or not at all.

If $x = 3$, then $5x + 2 = \square$.

If $x = 1$, then $2(x-4) = \square$.

If $x = -2$, then $-3x^2 + 4x + 15 = \square$.

19 17 11 6 -5 -6

7

Tom has read 11 pages of a 215-page book. He will read 6 pages each day until he finishes the book. Which equation can be used to find the number of days, d , it will take Tom to finish reading the book?

A $6 + 11d = 215$

B $11 + 6d = 215$

C $17d = 215$

D $6d = 215$

8

A cylindrical container has a diameter of 6 centimeters and a height that is $\frac{5}{3}$ times the diameter of the cylinder. What is the volume of the container, in cubic centimeters?

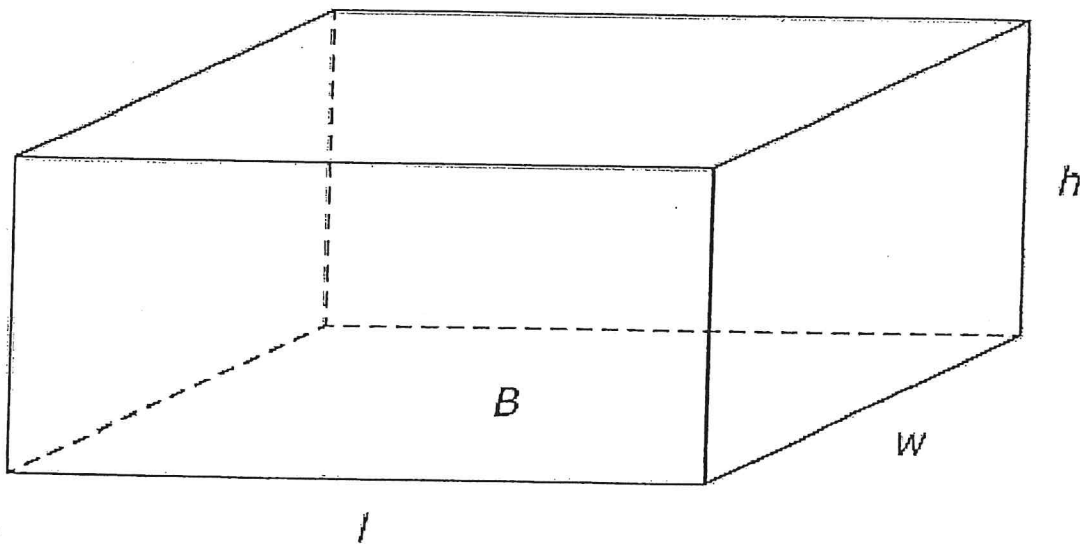
A 60π cubic centimeters

B 90π cubic centimeters

C 120π cubic centimeters

D 360π cubic centimeters

- 9 A right rectangular prism has a base area of 24 cm^2 . Its volume, in cubic centimeters, is not a whole number.



Select the measures that could be two of the dimensions of this prism. To select a measure, click the measure. To deselect a measure, click it again.

length = 6 cm	length = 6.1 cm	width = 3.9 cm
width = 4 cm	height = 2 cm	height = 8.4 cm
length = 7.5 cm	length = 12 cm	width = 10.5 cm
width = 3.5 cm	height = 15.1 cm	height = 9 cm

- 10 These data show the ages of students in a community play.

12, 9, 11, 9, 15, 11, 9, 11, 12

Which data point could be removed from the set without changing the mean or the median of the data?

- A 9
- B 11
- C 12
- D 15

11

School cafeteria workers conduct a survey on Monday to learn how many students will want to buy pizza on Friday.

What sample should the cafeteria workers choose for the survey?

- A every other student who buys lunch
- B every teacher who brings a class to lunch
- C every fourth student who enters the school
- D every other student who brings a lunch from home

12

Drag each pair of events into the table to show whether the events are dependent or independent. To place a pair of events in the table, click and hold the pair, and then drag it to the desired space. To change the classification of a pair of events, click and hold it, and then drag it to the desired space.

Dependent	Independent

one roll of a red number cube;
one roll of a blue number cube

pulling two cards, one at a time,
from a deck of playing cards
without replacement

pulling one card from a deck of
playing cards and rolling a number
cube

pulling one card from a deck of
playing cards, replacing it, and
pulling a second card

13

A student randomly selected one marble from a bucket of marbles 50 times with replacement. These are the results of his experiment.

- 5 green marbles
- 8 blue marbles
- 12 red marbles
- 25 purple marbles

Based on these results, what is the probability of selecting a green, blue, red, or purple marble?

Select one button in each row to indicate the expected probability for each color. To make a selection, click a button in one of the four columns. To remove a selected button, click the button again.

Probability of Selecting

Color	50%	0.16	24%	$\frac{1}{10}$
green	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
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red	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
purple	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

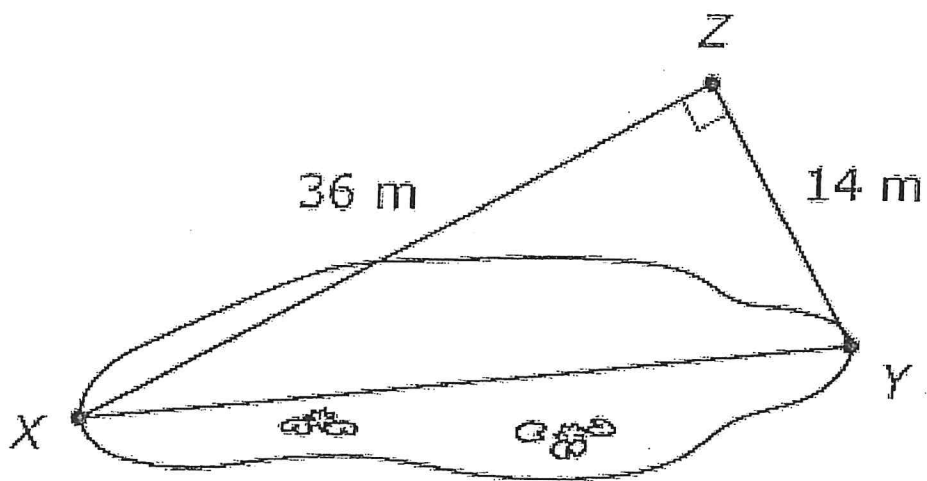
14

Mathew finds the deepest part of the pond to be $\sqrt{185}$ meters. Which measurement describes the depth of the pond?

- A between 13 and 14 meters
- B between 14 and 15 meters
- C between 92 and 93 meters
- D between 93 and 94 meters

15 Use this information to answer the following two questions.

Mathew wants to find the length of a pond. He picks three points and records the measurements, as shown in the diagram.



Which measurement is closest to the length of the pond from point X to point Y in meters?

- A 10 meters
- B 22 meters
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May 4th + May 5th Standards Practice

Key

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◦ Sometimes

$a + b$ is rational. *always* $x \cdot y$ is irrational. *Sometimes*

always

◦ never

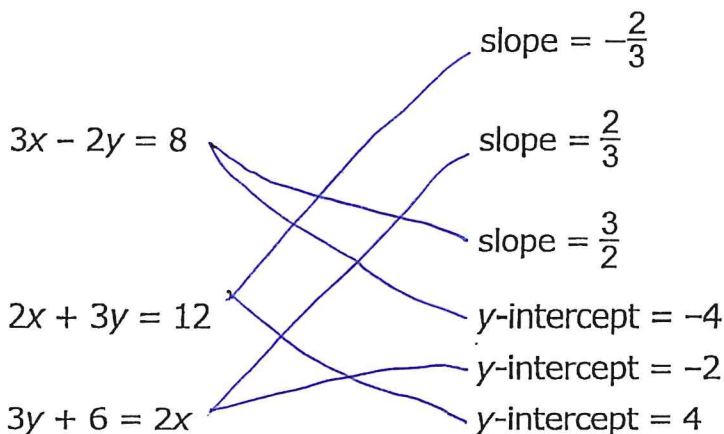
$a + x$ is rational. *never* $b \cdot x$ is irrational. *always*

never

always

②

Match the equation in the left column to the description of the slope and y-intercept of its graph in the right column. To connect an equation to a description, click an equation in the left column and then a description in the right column, and a line will automatically be drawn between them. To remove a connection, hold the pointer over the line until it turns red, and then click it. Each equation in the left column matches to exactly two descriptions in the right column. Each description in the right column can connect to one and only one equation in the left column.

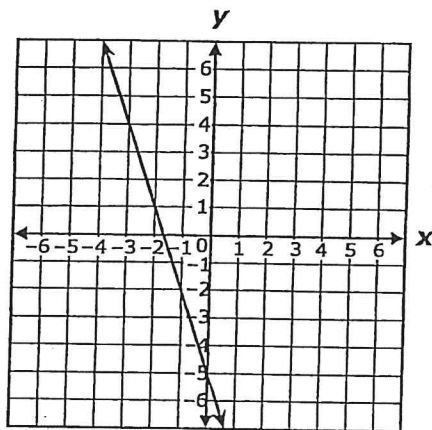


$$\begin{array}{r} 3x - 2y = 8 \\ -3x \quad -3x \\ \hline -2y = -3x + 8 \\ \frac{-2y}{-2} = \frac{-3x}{-2} + \frac{8}{-2} \\ y = \frac{3}{2}x - 4 \\ \begin{array}{l} \nearrow \text{slope} \\ \searrow \text{y-intc} \end{array} \end{array}$$

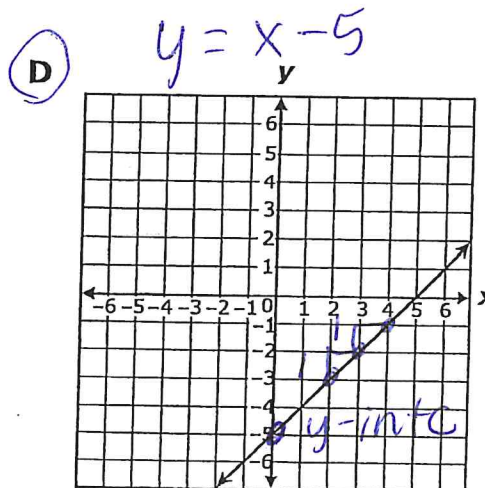
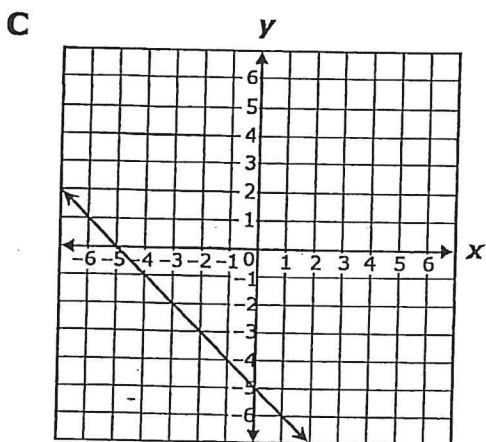
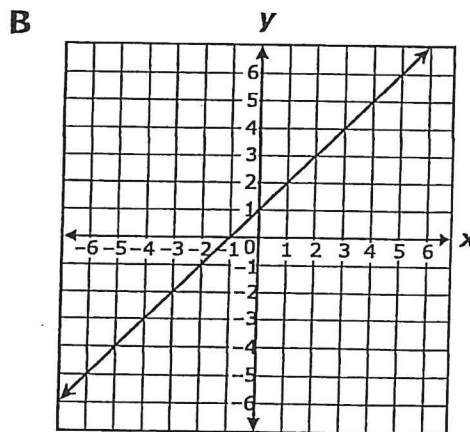
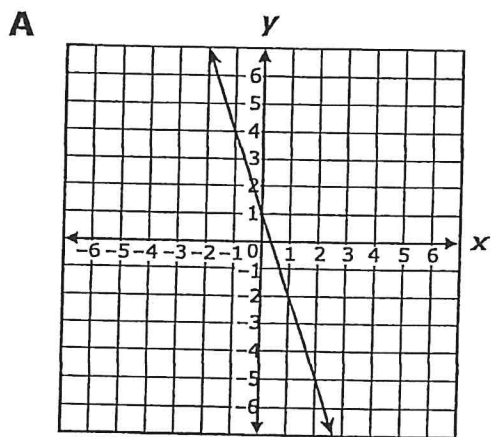
$$\begin{array}{r} 2x + 3y = 12 \\ -2x \quad -2x \\ \hline 3y = -2x + 12 \\ \frac{3y}{3} = \frac{-2x}{3} + \frac{12}{3} \\ y = -\frac{2}{3}x + 4 \\ \begin{array}{l} \nearrow \text{slope} \\ \searrow \text{y-intc} \end{array} \end{array}$$

$$\begin{array}{r} 3y + 6 = 2x \\ -6 \quad -6 \\ \hline 3y = 2x - 6 \\ \frac{3y}{3} = \frac{2x}{3} - \frac{6}{3} \\ y = \frac{2}{3}x - 2 \\ \begin{array}{l} \nearrow \text{slope} \\ \searrow \text{y-intc} \end{array} \end{array}$$

③ The graph of the equation $y = -3x - 5$ is shown below.



Which best represents the graph of the equation $y = -3x - 5$ when the slope is changed to 1 and the y -intercept remains the same?



4

$\Delta =$ change in

$$\frac{\Delta y}{\Delta x}$$

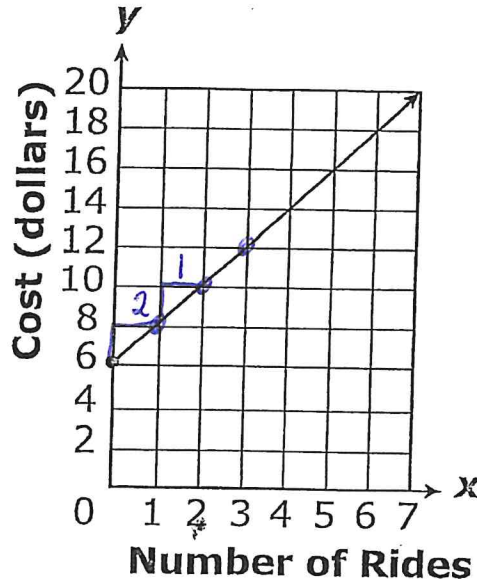
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5 When planning a trip to the local amusement park, Leah drew a graph to show her possible costs.

Amusement Park Costs



$$\frac{2}{1} = \frac{\text{vertical change}}{\text{horizontal change}}$$

Based on the graph, what is the cost per ride?

- A \$1.00
- B \$2.00
- C \$2.60
- D \$6.00

6

Complete these equations. Select the numbers you want to choose and drag and drop them into the boxes. To drag a number, click and hold it, and then drag to the desired box. To change a number, click and hold it, then drag it back to the desired box. You may use each number once, more than once, or not at all.

If $x = 3$, then $5x + 2 =$ $5(3) + 2$

If $x = 1$, then $2(x-4) =$ $2(1-4)$

If $x = -2$, then $-3x^2 + 4x + 15 =$ $-3(-2^2) + 4(-2) + 15$

19 17 11 6 -5 -6

Substitute the value of the variable into the expression and evaluate.

beginning amount

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represents a ratio

8

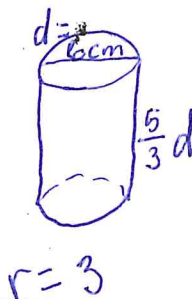
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$$V = \pi r^2 h$$

$$V = \pi \cdot 3^2 \cdot \frac{5}{3} \cdot 6$$

$$V = 90\pi$$

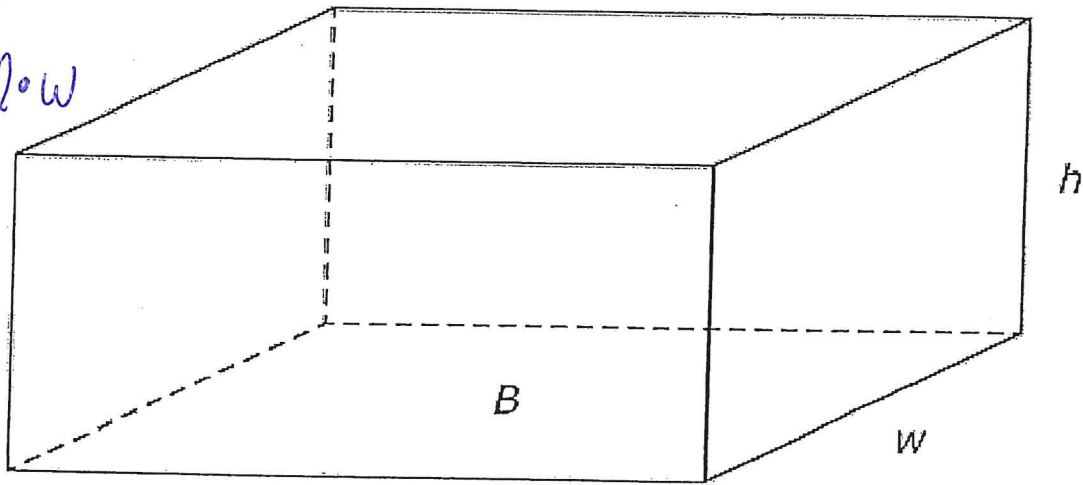
$$h = \frac{5}{3}(6)$$

- 9 A right rectangular prism has a base area of 24 cm^2 . Its volume, in cubic centimeters, is not a whole number.

$$V = B \cdot h$$

$$B = l \cdot w$$

this means I'm looking for a decimal



you must use the given measurements for each to see if possible.

Select the measures that could be two of the dimensions of this prism. To select a measure, click the measure. To deselect a measure, click it again.

<i>yes</i> length = 6 cm	<i>no</i> length = 6.1 cm	<i>yes</i> width = 3.9 cm
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<i>no</i>	<i>yes</i>	<i>no</i>

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Dependent	Independent

one roll of a red number cube;
one roll of a blue number cube

pulling two cards, one at a time,
from a deck of playing cards
without replacement

pulling one card from a deck of
playing cards and rolling a number
cube

pulling one card from a deck of
playing cards, replacing it, and
pulling a second card

13

A student randomly selected one marble from a bucket of marbles 50 times with replacement. These are the results of his experiment.

- 5 green marbles
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Based on these results, what is the probability of selecting a green, blue, red, or purple marble?

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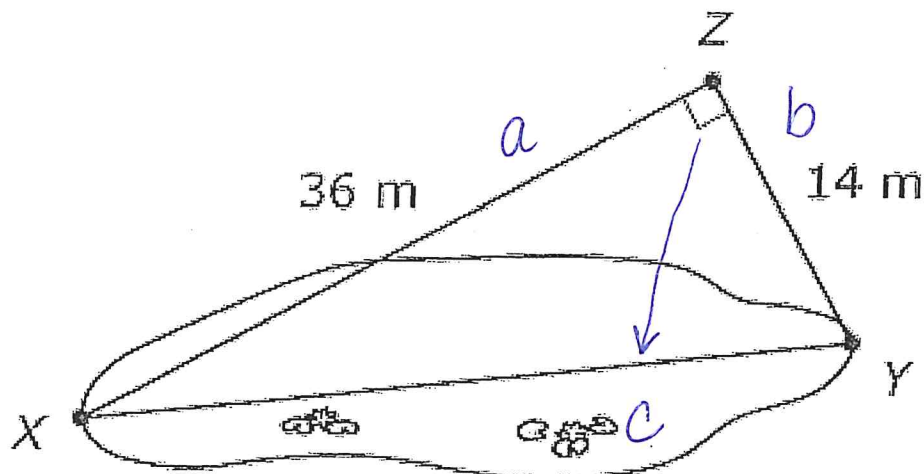
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Which measurement is closest to the length of the pond from point X to point Y in meters?

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- B 22 meters
- C 39 meters
- D 50 meters

$$\begin{aligned} a^2 + b^2 &= c^2 \\ 36^2 + 14^2 &= c^2 \\ 1296 + 196 &= c^2 \\ 1492 &= c^2 \end{aligned}$$

$$\sqrt{1492} = c \approx 38.6264\dots$$

May 6th, 7th & 8th

Standards Review Culminating Activity

Your task is to create a 10-question multiple choice summative assessment over the Oklahoma Academic Standards for Mathematics in Pre-Algebra. Your assessment should contain:

1. Question
2. Multiple Choice answers (a – d)
3. The correct answer identified
4. The standard(s)/substandard(s) that are being evaluated

I challenge you to make your questions differing levels (some easier but some more difficult). Maybe think about evaluating more than one standard in a question. Be creative and have fun with this activity.

As a resource, I have given you a copy of the Oklahoma Academic Standards for Mathematics in Pre-Algebra.

Please email these to your math teacher when complete if possible, or you could send to another 8th grade student to solve, or maybe challenge a sibling or parent to work your assessment!

Good luck!!!



Develop a Deep and Flexible Conceptual Understanding	Develop Accurate and Appropriate Procedural Fluency	Develop Strategies for Problem Solving	Develop Mathematical Reasoning	Develop a Productive Mathematical Disposition	Develop the Ability to Make Conjectures, Model, and Generalize	Develop the Ability to Communicate Mathematically
Number & Operations (N)						
<p>PAN.1.1 Read, write, compare, classify, and represent real numbers and use them to solve problems in various contexts.</p> <p>PAN.1.1.1 Develop and apply the properties of integer exponents, including $a^0 = 1$ (with $a \neq 0$), to generate equivalent numerical and algebraic expressions.</p> <p>PAN.1.2 Express and compare approximations of very large and very small numbers using scientific notation.</p> <p>PAN.1.3 Multiply and divide numbers expressed in scientific notation, express the answer in scientific notation.</p> <p>PAN.1.4 Classify real numbers as rational or irrational. Explain why the rational number system is closed under addition and multiplication and why the irrational system is not. Explain why the sum of a rational number and an irrational number is irrational; and the product of a non-zero rational number and an irrational number is irrational.</p> <p>PAN.1.5 Compare real numbers; locate real numbers on a number line. Identify the square root of a perfect square to 400 or, if it is not a perfect square root, locate it as an irrational number between two consecutive positive integers.</p>						
Algebraic Reasoning & Algebra (A)						
<p>PAA.1.1 Understand the concept of function in real-world and mathematical situations, and distinguish between linear and nonlinear functions.</p> <p>PAA.1.1.1 Recognize that a function is a relationship between an independent variable and a dependent variable in which the value of the independent variable determines the value of the dependent variable.</p> <p>PAA.1.2 Use linear functions to represent and explain real-world and mathematical situations.</p> <p>PAA.1.3 Identify a function as linear if it can be expressed in the form $y = mx + b$ or if its graph is a straight line.</p> <p>PAA.2.1 Represent linear functions with tables, verbal descriptions, symbols, and graphs; translate from one representation to another.</p> <p>PAA.2.2 Identify, describe, and analyze linear relationships between two variables.</p> <p>PAA.2.3 Identify graphical properties of linear functions including slope and intercepts. Know that the slope equals the rate of change, and that the y-intercept is zero when the function represents a proportional relationship.</p> <p>PAA.2.4 Predict the effect on the graph of a linear function when the slope or y-intercept changes. Use appropriate tools to examine these effects.</p> <p>PAA.2.5 Solve problems involving linear functions and interpret results in the original context.</p>						
<p>PAA.2 Recognize linear functions in real-world and mathematical situations; represent linear functions and other functions with tables, verbal descriptions, symbols, and graphs; solve problems involving linear functions and interpret results in the original context.</p>						



Oklahoma Academic Standards for Mathematics Pre-Algebra (PA)

<p>PA.A.3 Generate equivalent numerical and algebraic expressions and use algebraic properties to evaluate expressions.</p>	<p>PA.A.3.1 Use substitution to simplify and evaluate algebraic expressions.</p> <p>PA.A.3.2 Justify steps in generating equivalent expressions by identifying the properties used, including the properties of operations (associative, commutative, and distributive laws) and the order of operations, including grouping symbols.</p>
<p>PA.A.4 Represent real-world and mathematical problems using equations and inequalities involving linear expressions. Solve and graph equations and inequalities symbolically and graphically. Interpret solutions in the original context.</p>	<p>PA.A.4.1 Illustrate, write, and solve mathematical and real-world problems using linear equations with one variable with one solution, infinitely many solutions, or no solutions. Interpret solutions in the original context.</p> <p>PA.A.4.2 Represent, write, solve, and graph problems leading to linear inequalities with one variable in the form $px + q > r$ and $px + q < r$, where p, q, and r are rational numbers.</p> <p>PA.A.4.3 Represent real-world situations using equations and inequalities involving one variable.</p>
<p>Geometry & Measurement (GM)</p>	
<p>PA.GM.1 Solve problems involving right triangles using the Pythagorean Theorem.</p>	<p>PA.GM.1.1 Informally justify the Pythagorean Theorem using measurements, diagrams, or dynamic software and use the Pythagorean Theorem to solve problems in two and three dimensions involving right triangles.</p> <p>PA.GM.1.2 Use the Pythagorean Theorem to find the distance between any two points in a coordinate plane.</p>
<p>PA.GM.2 Calculate surface area and volume of three-dimensional figures.</p>	<p>PA.GM.2.1 Calculate the surface area of a rectangular prism using decomposition or nets. Use appropriate measurements such as cm^2.</p> <p>PA.GM.2.2 Calculate the surface area of a cylinder, in terms of π and using approximations for π, using decomposition or nets. Use appropriate measurements such as cm^2.</p> <p>PA.GM.2.3 Develop and use the formulas $V = lwh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area (B) and height (h) are multiplied to find the volume of a rectangular prism. Use appropriate measurements such as cm^3.</p> <p>PA.GM.2.4 Develop and use the formulas $V = \pi r^2 h$ and $V = Bh$ to determine the volume of right cylinders, in terms of π and using approximations for π. Justify why base area (B) and height (h) are multiplied to find the volume of a right cylinder. Use appropriate measurements such as cm^3.</p>



Oklahoma Academic Standards for Mathematics Pre-Algebra (PA)

Data & Probability (D)

<p>P.A.D.1 Display and interpret data in a variety of ways, including using scatterplots and approximate lines of best fit. Use line of best fit and average rate of change to make predictions and draw conclusions about data.</p>	<p>P.A.D.1.1 Describe the impact that inserting or deleting a data point has on the mean and the median of a data set. Know how to create data displays using a spreadsheet and use a calculator to examine this impact.</p>
	<p>P.A.D.1.2 Explain how outliers affect measures of central tendency.</p>
	<p>P.A.D.1.3 Collect, display and interpret data using scatterplots. Use the shape of the scatterplot to informally estimate a line of best fit, make statements about average rate of change, and make predictions about values not in the original data set. Use appropriate titles, labels and units.</p>
<p>P.A.D.2 Calculate experimental probabilities and reason about probabilities to solve real-world and mathematical problems.</p>	<p>P.A.D.2.1 Calculate experimental probabilities and represent them as percents, fractions and decimals between 0 and 1 inclusive. Use experimental probabilities to make predictions when actual probabilities are unknown.</p>
	<p>P.A.D.2.2 Determine how samples are chosen (random, limited, biased) to draw and support conclusions about generalizing a sample to a population.</p>
	<p>P.A.D.2.3 Compare and contrast dependent and independent events.</p>