

Lesson 6.2 Representing Functions Day 2

Week 1 Wednesday Course 3 Warm-up



A vending machine only accepts dimes and quarters. There are 85 coins in the machine with a total value of \$16.75. How many of each coin are in the machine?

Findina Functions

Which graph shows y as a function of x ?

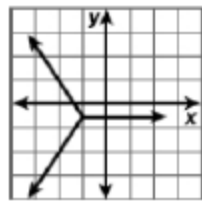


Figure 1

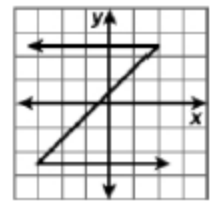


Figure 2

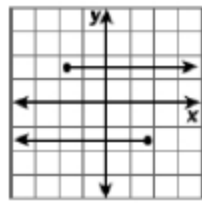


Figure 3

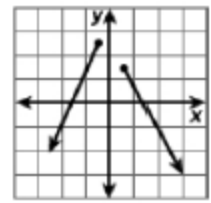
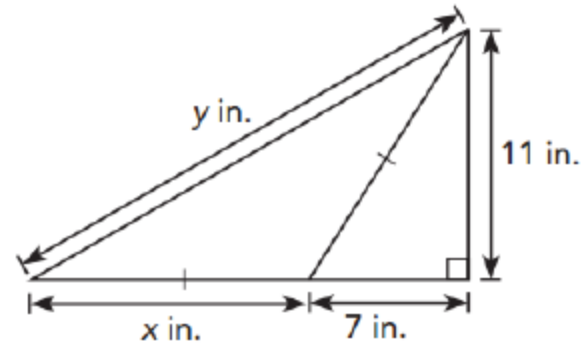


Figure 4

Calculate the missing length X . Round to nearest tenth



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A vending machine only accepts dimes and quarters. There are 85 coins in the machine with a total value of \$16.75. How many of each coin are in the machine?

Let the number of quarters be x and the number of dimes be y .

$10x + 25y = 1,675$ — Eq. 1

$x + y = 85$ — Eq. 2

Multiply Eq. 2 by 10:

$10(x + y) = 10(85)$

$10x + 10y = 850$ — Eq. 3

Subtract Eq. 3 from Eq. 1:

$$(10x + 25y) - (10x + 10y) = 1,675 - 850$$

$$10x - 10x + 25y - 10y = 825$$

$$15y = 825$$

$$\frac{15y}{15} = \frac{825}{15}$$

$$y = 55$$

Substitute 55 for y into Eq. 2:

$$x + 55 = 85$$

$$x + 55 - 55 = 85 - 55$$

$$x = 30$$

There are 30 quarters and 55 dimes in the vending machine.

Finding Functions

Which graph shows y as a function of x ?

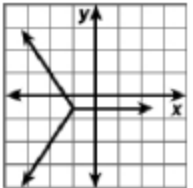


Figure 1

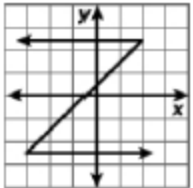


Figure 2

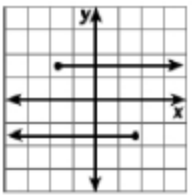


Figure 3

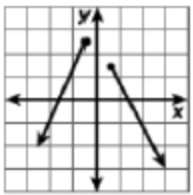


Figure 4



Calculate the missing length X . Round to nearest tenth

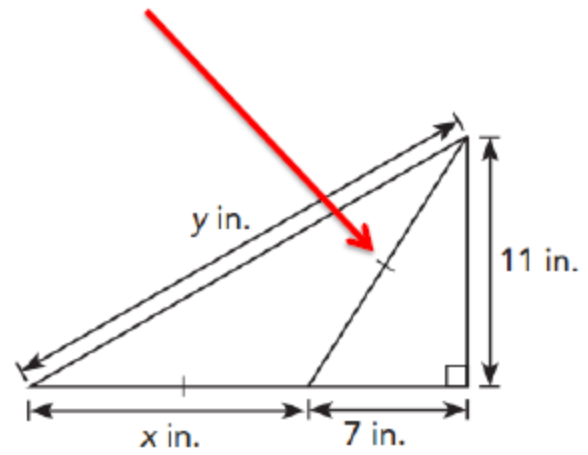
$$x^2 = 7^2 + 11^2$$

$$x^2 = 49 + 121$$

$$x^2 = 170$$

$$x = \sqrt{170}$$

$$x \approx 13.04$$



Lesson 6.2 Representing Functions Day 2

Objective

TSW represent a function in different forms including...

*Tables

***Algebraic Equation**

***Graphs**

Common Core State Standards

8F1 Understand that a function is a rule that assigns to each input exactly one output. 8F4 Construct a function to model a linear relationship between two quantities 8F5 Describe qualitatively the functional relationship between two quantities by analyzing a graph...

Mathematical Practices *MP1 Solve problems/persevere MP2 Reason MP 4 Model Mathematics*



▶ A function is a relation between a set of inputs and a set of outputs, in which every input has exactly one output. You can use tables, graphs, and equations to represent many functions.

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- 1 Gordon is traveling at a constant speed of 80 kilometers per hour. The distance he travels, d kilometers, is a function of the amount of time he takes to travel, t hours.

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The distance Gordon travels equals 80 km per hour times the number of hours he takes to travel.

$$D=80t$$

Lesson 6.2 Representing Functions Day 2

- 2 Mr. Henderson pays a monthly charge of \$40 for a family cell phone plan. Each additional family member pays \$10 every month. The total amount Mr. Henderson and his family members pay each month, y dollars, is a function of the number of the additional family members who use the plan, x .

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The total amount Mr. Henderson and his family pay each month equals \$40 plus \$10 times the number of additional family members

$$Y=40 + 10x$$

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- 3**  *Math Journal* In questions **1** and **2**, tell whether all values for the input and output are meaningful for the functions. Explain.

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Time and distance are always important input/output.

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- 5 A newly made glass vase has a temperature of 580°C . Its temperature then decreases at an average rate of 56°C per minute. The temperature of the glass vase, $y^{\circ}\text{C}$, is a function of the number of minutes its temperature has been decreasing, x .

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- 5 A newly made glass vase has a temperature of 580°C . Its temperature then decreases at an average rate of 56°C per minute. The temperature of the glass vase, $y^{\circ}\text{C}$, is a function of the number of minutes its temperature has been decreasing, x .

$$Y=580-56x$$

x	1	2	3
y	524	468	412

Lesson 6.2 Representing Functions Day 2

Use the table of values to plot a graph to represent the function. Then write an algebraic equation for the function.

- 9 A motorcyclist rode at a constant speed from City A to City B, which are 240 miles apart. The table shows his distance from City B, y miles, as a function of the number of hours he rode, x hours. Use 1 unit on the horizontal axis to represent 1 hour for the x interval, and 1 unit on the vertical axis to represent 40 miles for the y interval.

Number of Hours (x)	0	1	2	3	4	5	6
Distance from City B (y miles)	240	200	160	120	80	40	0

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Number of Hours (x)	0	1	2	3	4	5	6
Distance from City B (y miles)	240	200	160	120	80	40	0

$$Y = -40x + 240$$

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Practice 6.2 #1-10

Name: _____ Date: _____

Practice 6.2

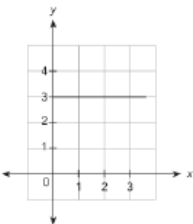
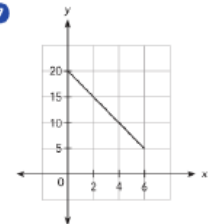
Write a verbal description of each function. Then write an algebraic equation for the function.

- Gordon is traveling at a constant speed of 80 kilometers per hour. The distance he travels, d kilometers, is a function of the amount of time he takes to travel, t hours.
- Mr. Henderson pays a monthly charge of \$40 for a family cell phone plan. Each additional family member pays \$10 every month. The total amount Mr. Henderson and his family members pay each month, y dollars, is a function of the number of the additional family members who use the plan, x .
- Math Journal** In questions 1 and 2, tell whether all values for the input and output are meaningful for the functions. Explain.

Write an algebraic equation for each function. Then construct a table of x - and y -values for the function.

- The students from the Robotics Club are making model windmills for a workshop. Each windmill has three blades. The total number of blades needed, y , is a function of the number of windmills they make, x .
- A newly made glass vase has a temperature of 580°C . Its temperature then decreases at an average rate of 56°C per minute. The temperature of the glass vase, $y^{\circ}\text{C}$, is a function of the number of minutes its temperature has been decreasing, x .

Each of the following graphs represents a function. Write an algebraic equation to represent the function.

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Course 3

Challenge- #11

*Solve created equations

“Pick a Snowflake”

*Real World Problem (website)

*BuzzMath



Lesson Check #9-can represent a function as a graph

Ticket Out the Door- Connect, Extend, Challenge

1. How are the ideas and information presented **CONNECTED** to what you already knew?
2. What new ideas did you get that **EXTENDED** or pushed your thinking in new directions?
3. What is still **CHALLENGING** or confusing for you to get your mind around? What questions, wonderings or puzzles do you now have?