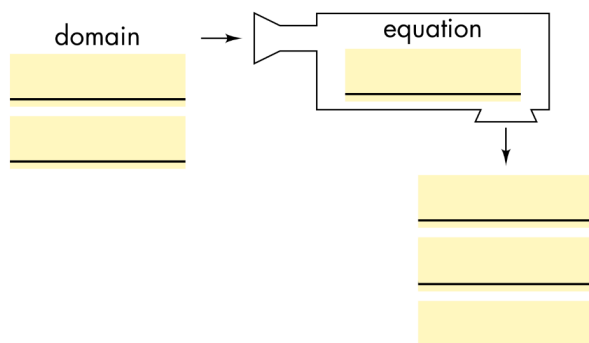


Vocabulary:

REVIEW

- Use the words below to label the function machine at the right. Use each word once.

function rule y -values output
 x -values input range

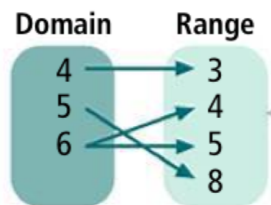
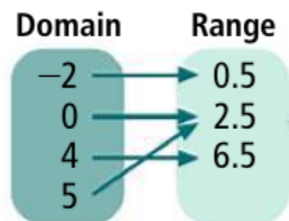


Relation: Is a pairing of numbers in the domain with numbers in the range.

Function: Every value in the domain is paired with exactly one value in the range.
(REMEMBER no repeated x values)

4.6.1: I can determine whether a relation is a function.

Example 1: Using a mapping Diagram



Are the above relation representing a function?

Example 2: Using Order pairs

Are the below relations representing a function?

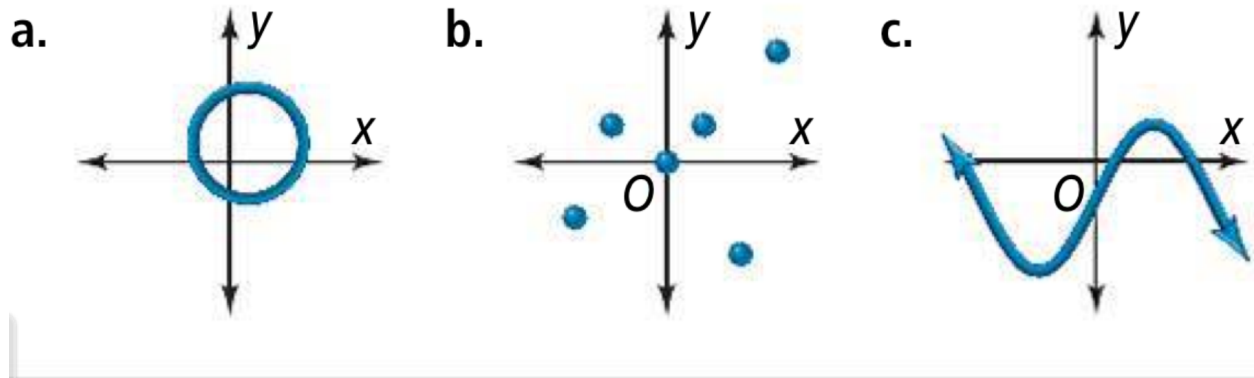
a.) $(4.2, 1.5)$ $(5, 2.2)$ $(7, 4.8)$, $(4.2, 0)$

b.) $(-1, 1)$, $(-2, 2)$, $(4, -4)$, $(7, -7)$

Example 3: Using the Vertical line test

Vertical Line Test: If any vertical line passes through more than one point of the graph, then the relation is not a function.

Are the below graphs representing a function?



4.6.3: I can use function notation, determine independent and dependent variables, and evaluate a function.

Function Notation: $F(x)$ replaces y and is read f of x .

Example 4: Re-write each function using function notation.

a.) $y=2x$

b.) $y=4x+10$

c.) $y=1/2x-6$

Example 5: Evaluate the following given that $f(x)=-3x+9$ and $g(x)=2x+12$.

a.) $f(3)$

b.) $g(-5)$

c.) $f(-1)$

d.) $g(0)$

Example 6: The function $w(x)=250x$ represents the number of words $w(x)$ you can read in x minutes. Identify the Independent and Dependent Variables. How many words can you read in 8 min?

Example 7: Sound travels at about 343 meters per second. The function $d(t)=343t$ gives the distance $d(t)$ in meters that sound travels in t seconds. Identify the independent and dependent variables. How far does sound travel in 10 seconds?

4.6.2: I can identify the domain and range of a function.

For Examples 1 and 2 above find the domain and range.

1. a.)

b.)

2. a.)

b.)

3. You have 7 qt of paint to paint the trim in your house. A quart of paint covers 100 square feet. The function $A(q)=100q$ represents the area $A(q)$, in square feet, that q quarts of paint cover. What domain and range are reasonable for the function? (Follow 17-19 below to help answer the question)

17. Complete the reasoning model below.

Think	Write
The least amount of paint I can use is 0 qt. So, that is the least domain value.	$A(\square) = 100 \cdot \square$ $A(\square) = \square$
The greatest amount of paint I can use is 7 qt. So, that is the greatest domain value.	$A(\square) = 100 \cdot \square$ $A(\square) = \square$

18. A reasonable domain is $\square \leq q \leq \square$. 19. A reasonable range is $\square \leq A(q) \leq \square$.

4. Find the Range given a specific Domain.

Got It? The domain of $g(x) = 4x - 12$ is $\{1, 3, 5, 7\}$. What is the range?

14. Underline the correct word to complete each sentence.

The domain / range is the set of input values.

The domain / range is the set of output values.

15. Use the function $g(x) = 4x - 12$ with domain $\{1, 3, 5, 7\}$. Find each output

$g(1)$

$g(3)$

$g(5)$

$g(7)$

16. The range of $g(x) = 4x - 12$ with domain $\{1, 3, 5, 7\}$ is

$\{\square, \square, \square, \square\}$.

