

Algebra 1

Chapter 4

Section 4-6

May 13-10:02 PM

Concepts

Domain -- Collection of values that are the inputs of a function.

↳ All X → independent variable

Range -- Collection of values that are the outputs of a function.

↳ All Y - Dependent variables

Recall

A function matches one input with exactly one output.

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Domain and Range

A function gives the ordered pairs below. What is the domain of the function? The range?

$$\{(5, 7), (9, 19), (11, 4), (7, 11), (0, 7)\}$$

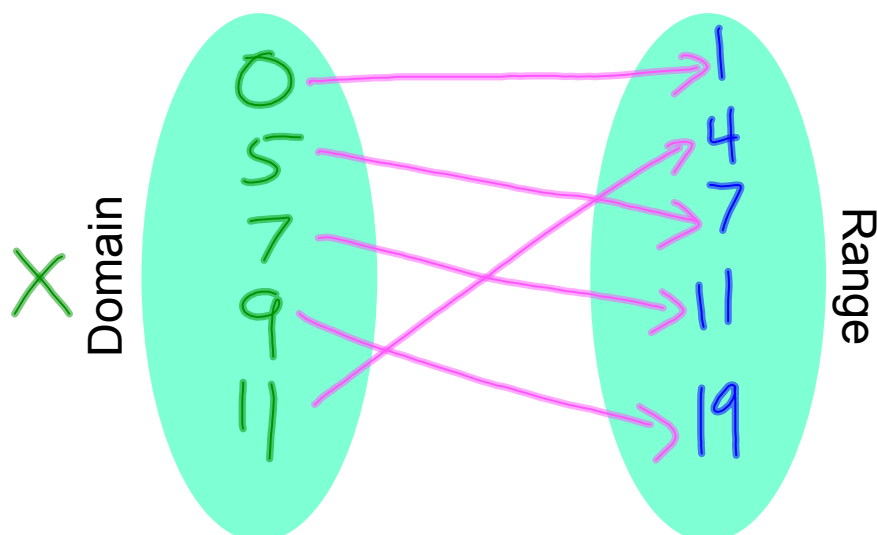
Domain (x): 5, 9, 11, 7, 0

Range (y): 7, 19, 4, 11.

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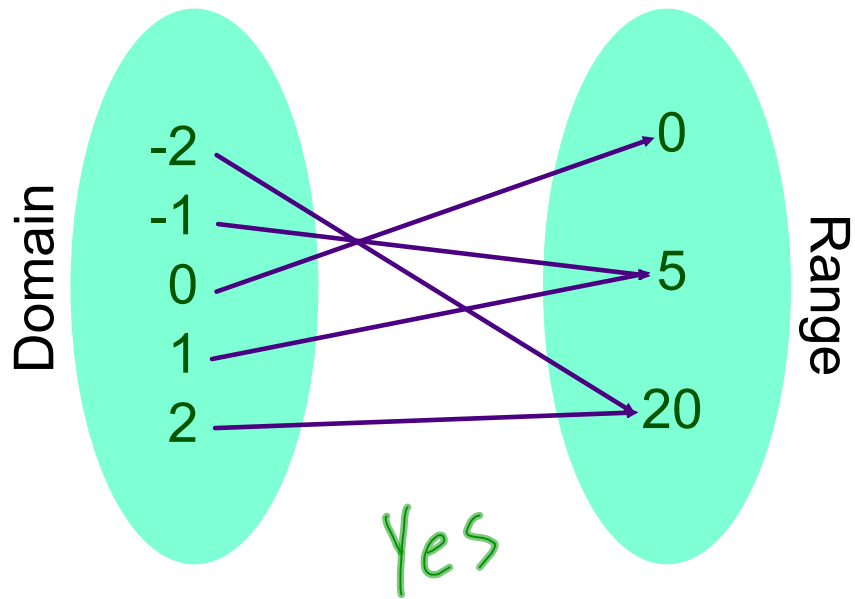
Draw a diagram from the given ordered pairs:

$$\{(5, 7), (9, 19), (11, 4), (7, 11), (0, 1)\}$$



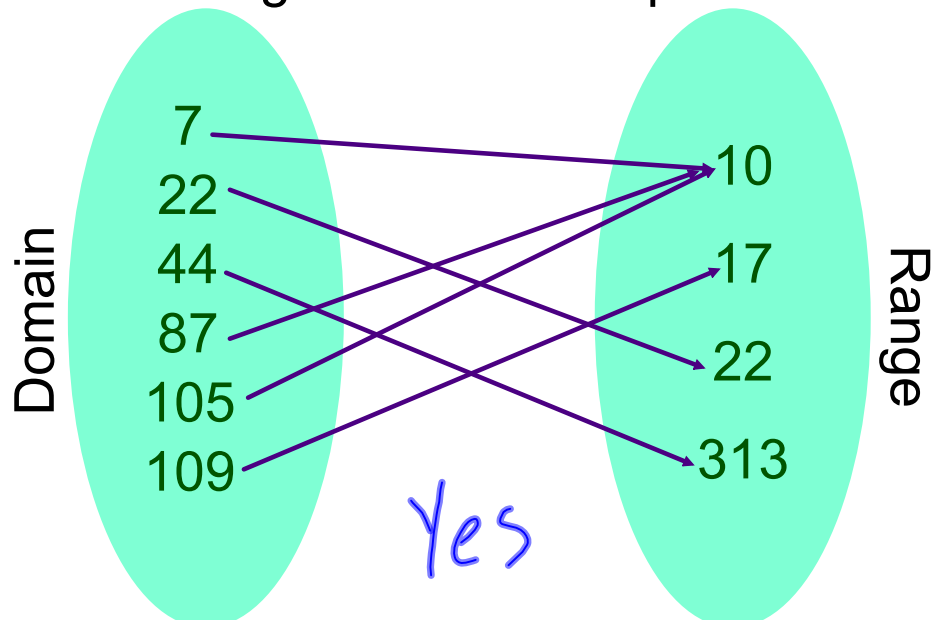
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Determining if a relationship is a function



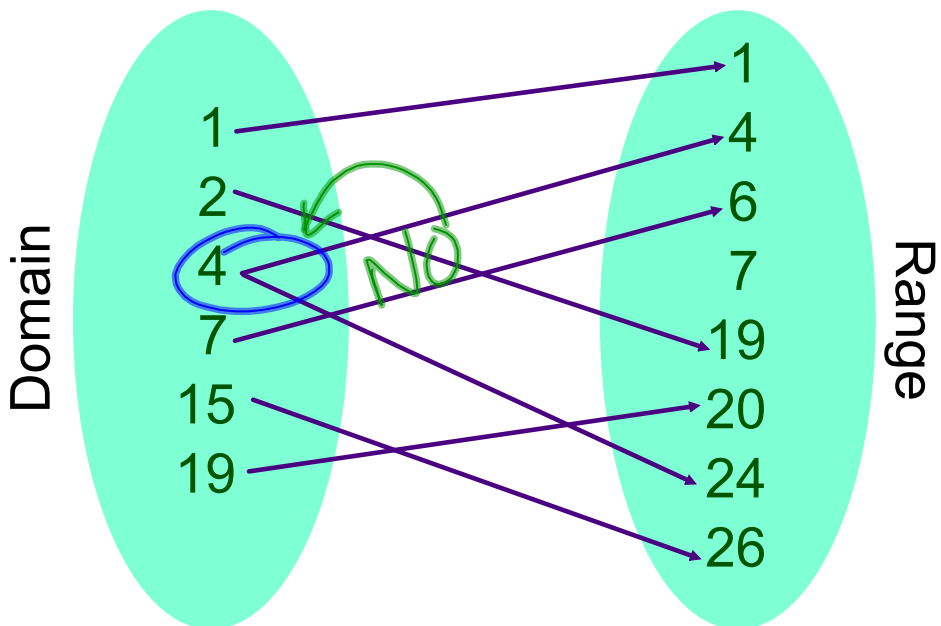
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Determining if a relationship is a function



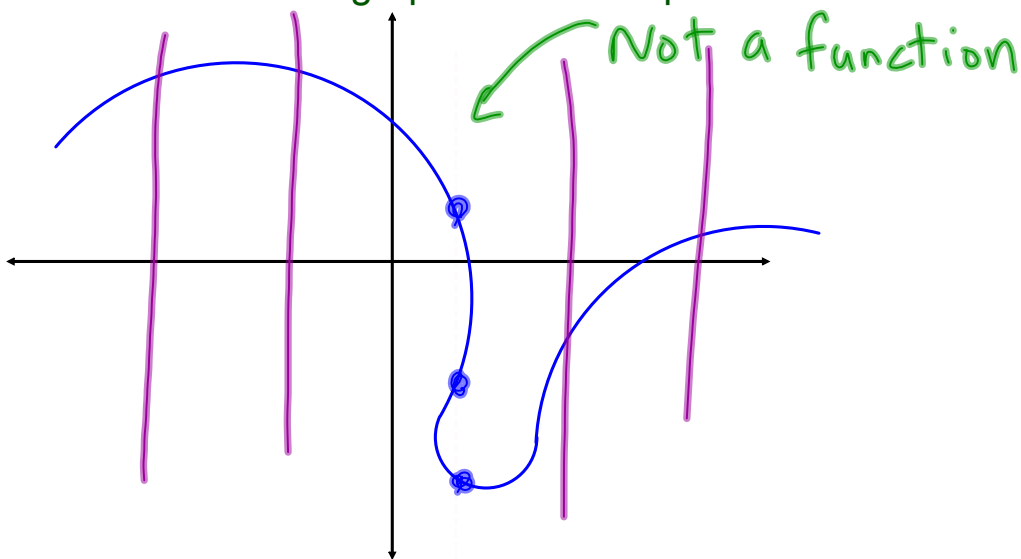
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Determining if a relationship is a function



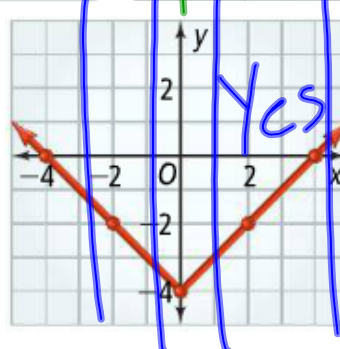
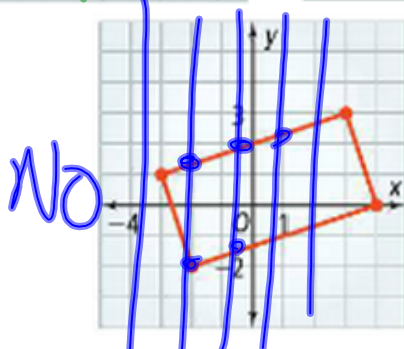
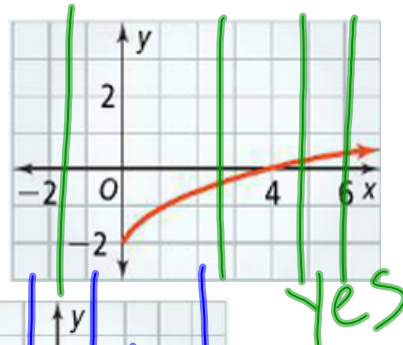
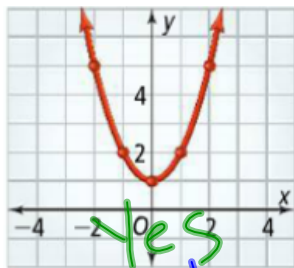
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The graph of a function must pass the vertical line test. If you can draw some vertical line on a graph that passes through the line more than once then the graph does not represent a function



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Determining if a graph shows a function



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Function Notation

$f(x)$ - looks like "f" times "x", but it
means the function's value at "x"

Ex: $f(5)$ - means the function value at "x=5"

5 is input

Nov 10-8:57 AM

Find $f(4)$, then write an ordered pair.

$$f(x) = x + 9 \longrightarrow \text{Defines function rule}$$

$$f(4) = 4 + 9 \longrightarrow \text{Replace } x \text{ with } 4$$

$$y = 4 + 9 \longrightarrow \text{Replace } f(4) \text{ with } y$$

$$y = 13 \longrightarrow \text{Simplify the right side}$$

$(4, 13)$

input output

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Find $f(10)$, then write an ordered pair.

$$f(x) = x^2 - 5x$$

$$f(10) = 10^2 - 5(10)$$

$$100 - 50$$

$$f(10) = 50$$

$(10, 50)$

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Find the range of the function for the given domain.

$$\underline{f(x) = \frac{12}{x}} \quad \text{Domain: } \{-3, -1, 1, 2, 4, 6\}$$

$$f(-3) = \frac{12}{-3} = -4 \quad f(2) = \frac{12}{2} = 6$$

$$f(-1) = \frac{12}{-1} = -12 \quad f(4) = \frac{12}{4} = 3$$

$$f(1) = \frac{12}{1} = 12 \quad f(6) = \frac{12}{6} = 2$$

$$\text{Range: } \{-12, -4, 2, 3, 6, 12\}$$

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An employee at the local grocery store makes \$9 for every hour that they work. According to store policy the maximum number of hours an employee can work in one week is forty.

- Is the relationship between hours and income linear?
 - Is the relationship continuous or discrete?

↳ continuous

↓
Yes

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An employee at the local grocery store makes \$9 for every hour that they work. According to store policy the maximum number of hours an employee can work in one week is forty.

- What is the independent variable?

hours (Dom) (x)

- What is the dependent variable

\$ (Range) (y)

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An employee at the local grocery store makes \$9 for every hour that they work. According to store policy the maximum number of hours an employee can work in one week is forty.

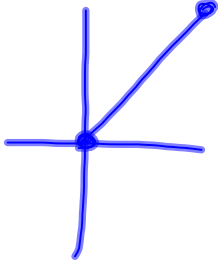
- Determine the domain of the function.

$\{x \mid 0 \leq x \leq 40\}$

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An employee at the local grocery store makes \$9 for every hour that they work. According to store policy the maximum number of hours an employee can work in one week is forty.

- Determine the range of the function.



$$\{y \mid 0 \leq y \leq 360\}$$

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