

<http://www.virtualnerd.com/algebra-1/relations-functions/functions/function-notation/f-of-x-definition>



Copy this Down BLUE Material

In the previous lesson, you learned how to identify a function by analyzing the domain and range and using the vertical line test.

Now we are going to take a look at **function notation** and how it is used in Algebra

The typical notation for a function is $f(x)$. This is read as "f of x" This does NOT mean f times x. This is a special notation used only for functions.

You may see $g(x)$, or $h(x)$, or even $b(a)$. You can use any letters,

Table of Values

$$y = 2x + 3$$

x	y
0	3
1	5
2	7
3	9

since y is a function of x then we can write

$$f(x) = 2x + 3$$

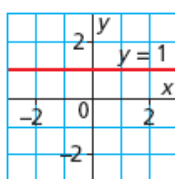
Any HW Questions

We can do on next page since
copied out from book already

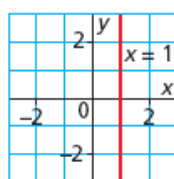
Solutions

6. Which of these graphs represents a function? Justify your answer.

a)



b)

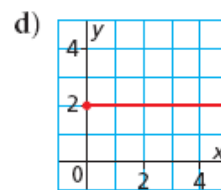
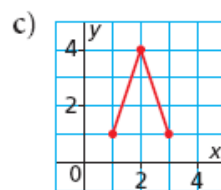
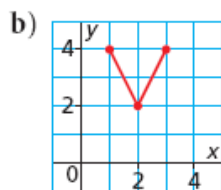
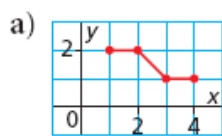


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Questions: 6, 7, 8, 9, 10

Solutions

7. Match the graph of each function to its domain and range listed below.

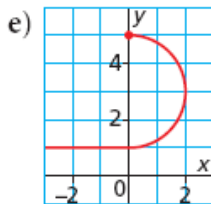
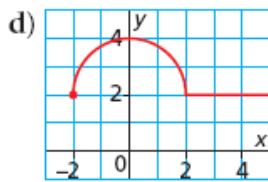
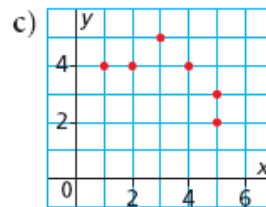
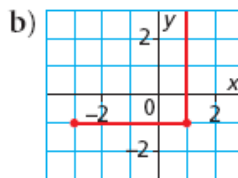
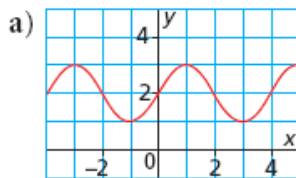


- i) domain: $1 \leq x \leq 3$; range: $2 \leq y \leq 4$
- ii) domain: $1 \leq x \leq 3$; range: $1 \leq y \leq 4$
- iii) domain: $x \geq 0$; range: $y = 2$
- iv) domain: $1 \leq x \leq 4$; range: $1 \leq y \leq 2$

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Questions: 6, 7, 8, 9, 10

Solutions

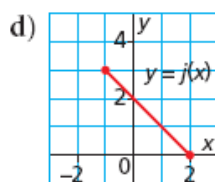
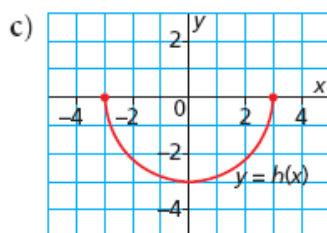
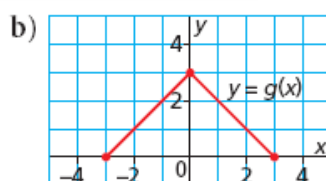
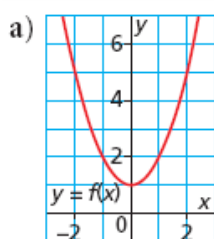
8. Which of these graphs represents a function? Justify your answer.
Write the domain and range for each graph.



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Questions: 6, 7, 8, 9, 10

Solutions

9. Determine the domain and range of the graph of each function.



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Questions: 6, 7, 8, 9, 10

Solutions

10. Suppose a student drew a graph of each function described below. For which graphs should the student connect the points? Justify your answers.
- a) The cost of a custom-made T-shirt is a function of the number of letters on the T-shirt.
 - b) The altitude of a plane is a function of the time it is in the air.
 - c) The mass of a baby is a function of her age.
 - d) The cube root of a real number is a function of the number.

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Questions: 6, 7, 8, 9, 10



Page 299: SOLUTIONS
Questions: 3

3) a Not a Function

$$\{x \mid 0 \leq x \leq 2, x \in \mathbb{R}\}$$

$$\{y \mid 1 \leq y \leq 5, y \in \mathbb{R}\}$$

3) B Function

$$\{x \mid -3 \leq x, x \in \mathbb{R}\}$$

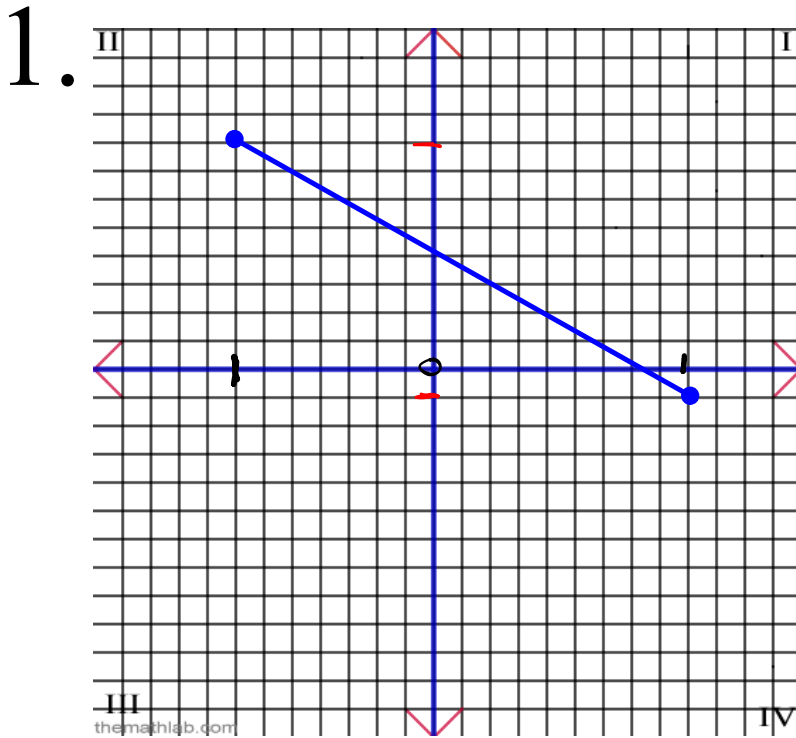
$$\{y \mid 0 \leq y, y \in \mathbb{R}\}$$

3) c Function

$$\{x \mid -2 \leq x \leq 2, x \in \mathbb{R}\}$$

$$\{y \mid -8 \leq y \leq 8, y \in \mathbb{R}\}$$

EXAMPLES!



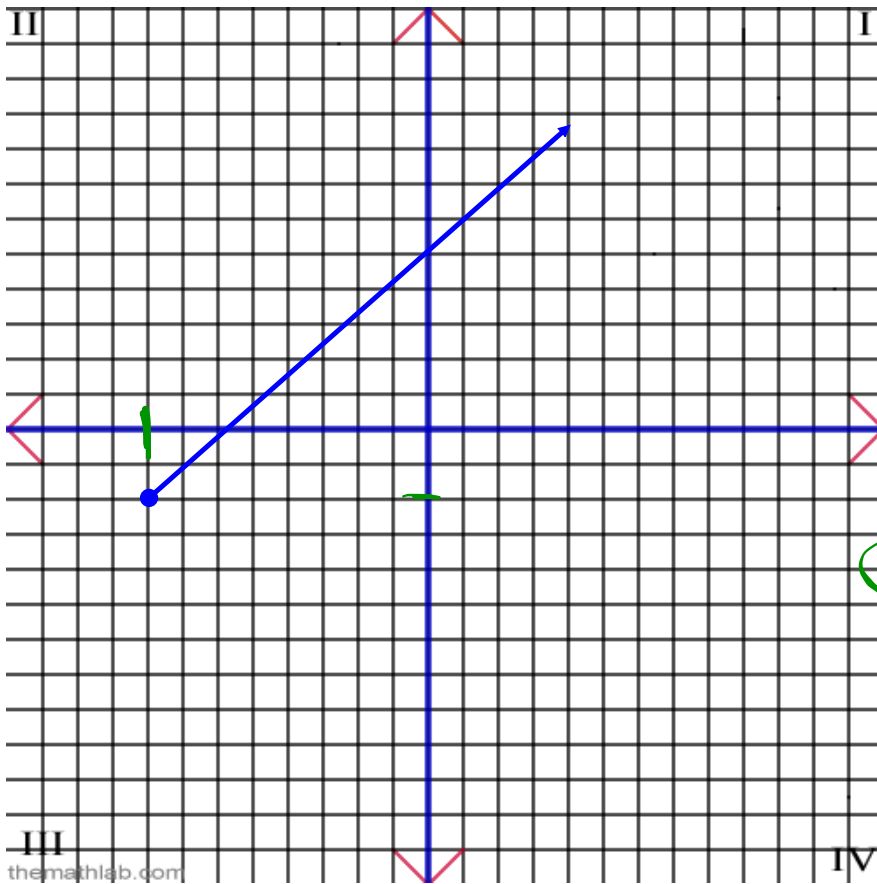
Discrete/ Continuous:

Function/ Non-Functions

$$\text{Domain: } \{x \mid -7 \leq x \leq 9, x \in \mathbb{R}\}$$

$$\text{Range: } \{y \mid -1 \leq y \leq 8, y \in \mathbb{R}\}$$

Linear or Non-Linear



Discrete/ Continuous:

Function/ Non-Functions

Domain:

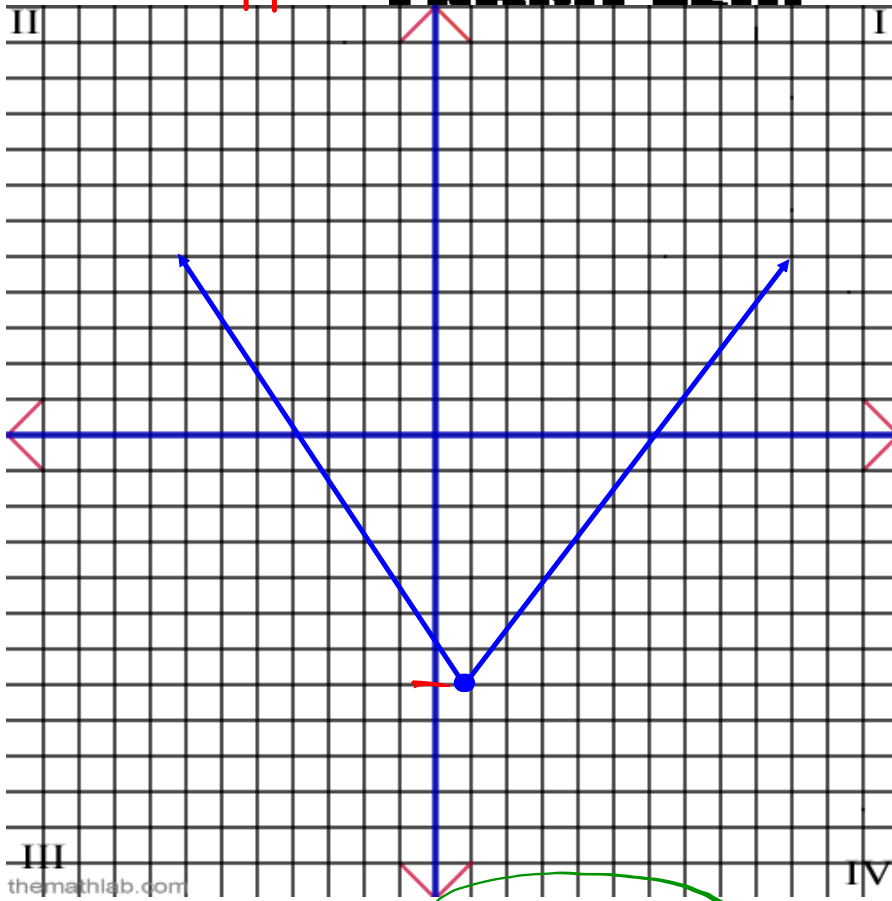
Range:

Linear

$$D \rightarrow \{x \mid -8 \leq x, x \in \mathbb{R}\}$$

$$R \rightarrow \{y \mid -2 \leq y, y \in \mathbb{R}\}$$

EXAMPLES!



Discrete/ Continuous!

Function/ Non-Functions

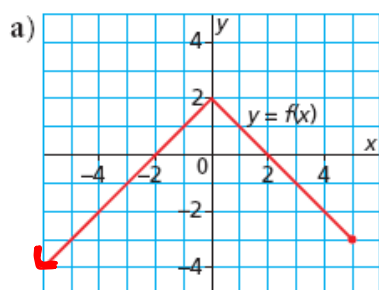
Domain: $\{x \mid x \in \mathbb{R}\}$

Range: $\{y \mid -7 \leq y, y \in \mathbb{R}\}$

Non-Linear
↳ not a straight line

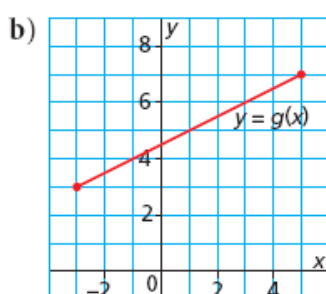
CHECK YOUR UNDERSTANDING

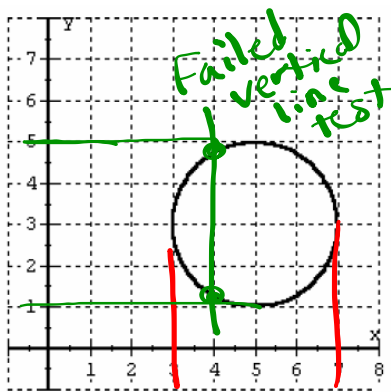
2. Determine the domain and range of the graph of each function.



$$\{x \mid x \leq 5, x \in \mathbb{R}\}$$

$$\{y \mid y \leq 2, y \in \mathbb{R}\}$$



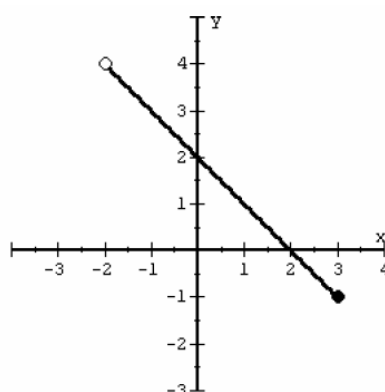


$$(x - 5)^2 + (y - 3)^2 = 4$$

Function? **NO**

Domain: $\{x \mid 3 \leq x \leq 7, x \in \mathbb{R}\}$

Range: $\{y \mid 1 \leq y \leq 5, y \in \mathbb{R}\}$

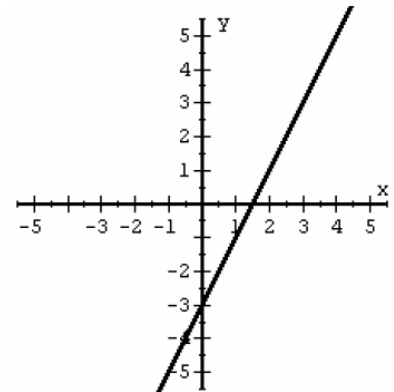


Line Segment

Function? **Yes**

Domain: $\{x \mid -2 < x \leq 3, x \in \mathbb{R}\}$

Range: $\{y \mid -1 \leq y < 4, y \in \mathbb{R}\}$



$$y = 2x - 3$$

Function?

Domain:

Range:

