

Find the slope and y-intercept.

$$5x - 3y = -6$$

$$\begin{array}{r} -5x \\ \hline -3y = -5x - 6 \\ \hline \frac{-3y}{-3} = \frac{-5x - 6}{-3} \end{array}$$

$$y = \frac{5}{3}x + 2$$

$$m = \frac{5}{3}$$

$$b = 2$$

$$\frac{5x - 8 = 8y}{8}$$

$$\frac{5}{8}x - 1 = y$$

$$y = \frac{5}{8}x - 1$$

$$m = \frac{5}{8} \quad b = -1$$

Homework Questions?

On the top of your paper (by your name) rate yourself for this section:

**4 - I can summarize the concepts and explain it to others**

**3 - I can apply the concept to answer questions correctly**

**2 - I can apply the concepts but with some mistakes**

**1 - I need help and know how to apply the concept**

**0 - I can't apply the concept, even with help**

\*Rating of 0-2 is a warning signal to me that you need help\*

## 4.8 Functions and Relations

**Goals:** • Decide whether a relation is a function and use function notation.

**EQ:** How can you tell if an equation is a function?

The Unit Organizer		NAME: _____ DATE: _____
Algebra 1.5		
② LAST UNIT/Experience <b>Solving Linear Equations</b>	① CURRENT UNIT <b>Graphing Linear Equations &amp; Functions</b>	③ NEXT UNIT/Experience <b>Writing Linear Equations</b>
⑧ Student Activities or Assignments  4.1 4.2 4.3 4.4 4.5 4.6 4.7 4.8	⑤ UNIT MAP  <div style="text-align: center;"> </div>	
⑦ UNIT SELF-TEST QUESTIONS  1. How do you use a table to graph a line? 2. How do I find the intercepts in order to graph a line? 3. How can I calculate the slope with coordinates, or a graph, or a real world situation? 4. How do I write and solve a direct variation model? 5. How can I graph a line using the slope and y-intercept? 6. How can I determine a function and then evaluate it?	Graph Determine Identify Calculate	⑥ UNIT RELATIONSHIPS

## Vocabulary

**Relation:** Any set of ordered pairs.  $(x, y)$

**Function:** For each input there is exactly one output.

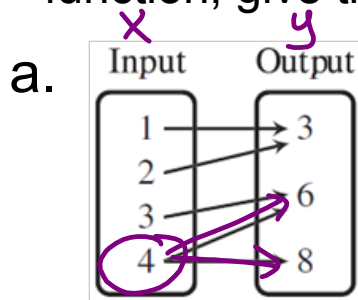
**Function Notation:** A more specific way of defining functions.  
 a)  $f(x)$  means the value of  $f$  at  $x$  or  $f$  of  $x$   
 ☆ b)  $f(x)$  is  $y$ .  
 c) NOT  $f$  times  $x$

**Linear function:**

function in the form of  $f(x) = mx + b$

**Example 1: Identify Functions**

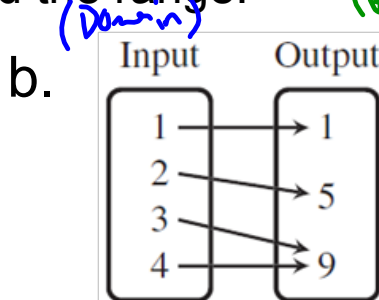
Decide whether the relation is a function. If it is a function, give the domain and the range.



No, b/c

$4 \rightarrow 6$

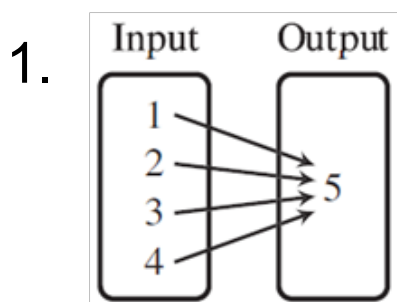
$4 \rightarrow 8$



Yes

Domain: 1, 2, 3, 4

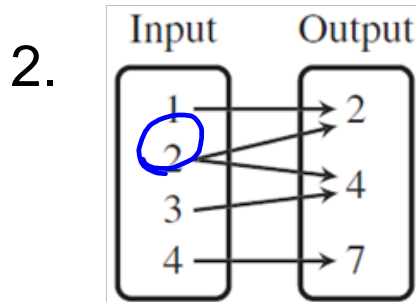
Range: 1, 5, 9

**Try It**

Yes

Domain: 1, 2, 3, 4

Range: 5



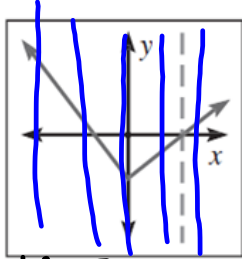
No, b/c

$2 \rightarrow 2$

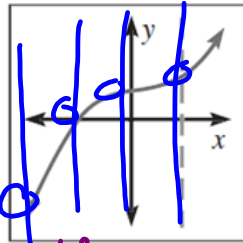
$2 \rightarrow 4$

## VERTICAL LINE TEST FOR FUNCTIONS

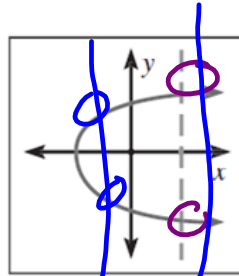
A graph is a function if no vertical line intersects the graph at more than one point.



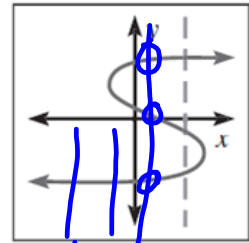
Yes



Yes



No

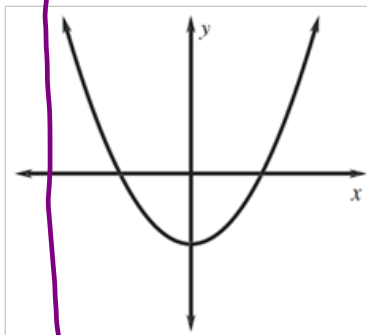


No

### Example 2: Use the Vertical Line Test

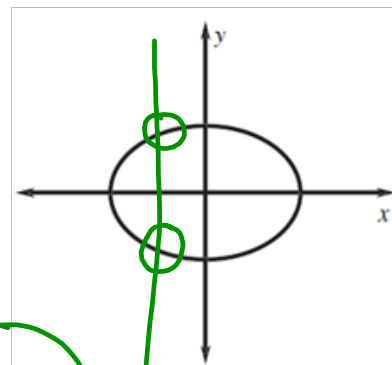
Use the vertical line test to determine whether the graph represents a function.

a.



Yes

b.

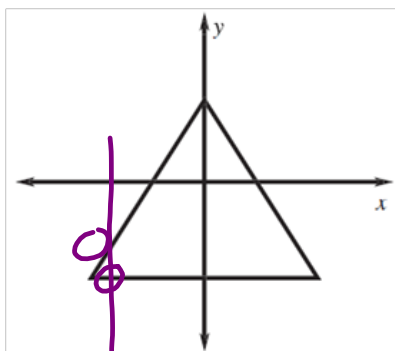


No

**Try It**

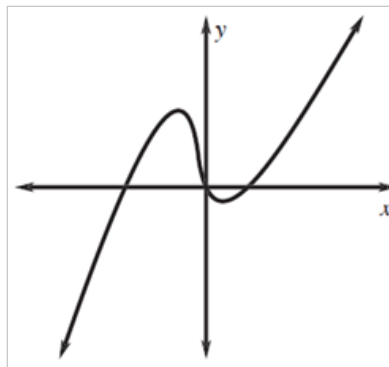
Use the vertical line test to determine whether the graph represents a function.

3.



No

4.



yes

**Example 3: Evaluate a Function**

Evaluate  $g(x) = -2x + 3$  when  $x = 4$ .

$$g(4) = -2(4) + 3$$

$$= -8 + 3$$

$$g(4) = -5$$

$$(4, -5)$$

$f(x) = -7x + 3$  when  $x = -3$

$$f(-3) = -7(-3) + 3$$

$$= 21 + 3$$

$$f(-3) = 24$$

$$(-3, 24)$$

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

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

$$= 4 - 5$$

$$f(2) = -1$$

$$(2, -1)$$

$$\wedge$$

$$x^2$$

## Summary

**EQ:** How can you tell if an equation is a function?

## 4.8 Homework

p. 255 #13-33

# 4.8 Homework

p.255 #7-24, 26-32even