

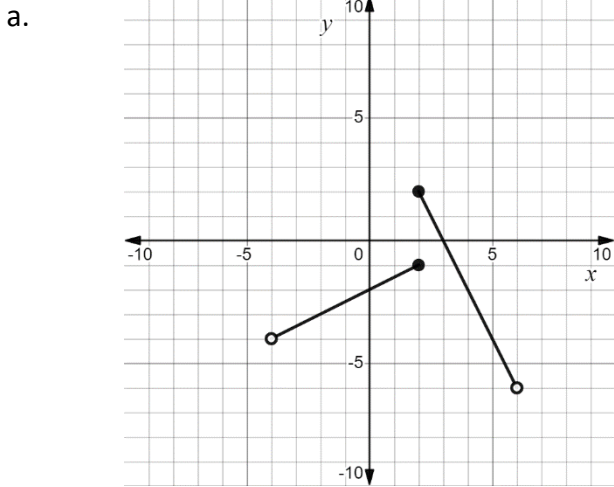
Name: _____

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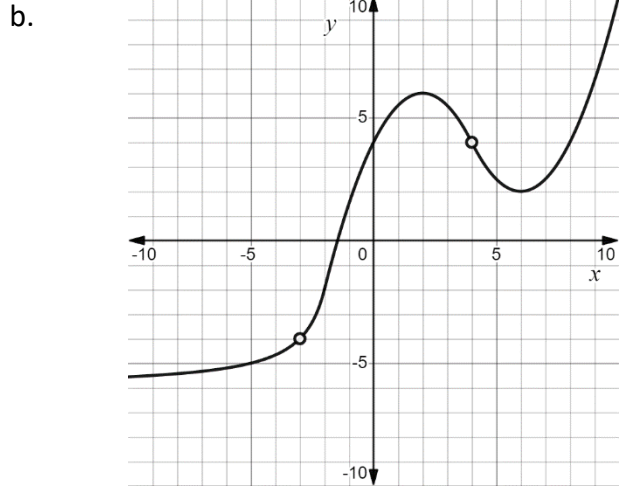
Learning Goal 0.1	Expectations for graphing from previous years.
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More Questions – Solutions

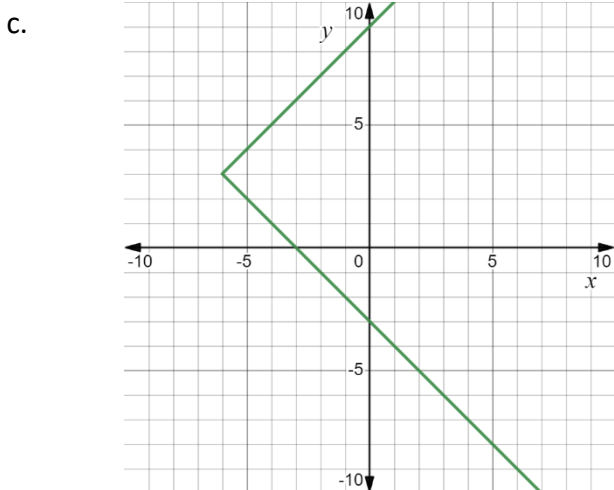
1. Determine whether each of the following graphs represents a function. If so, state the domain and range of the function.



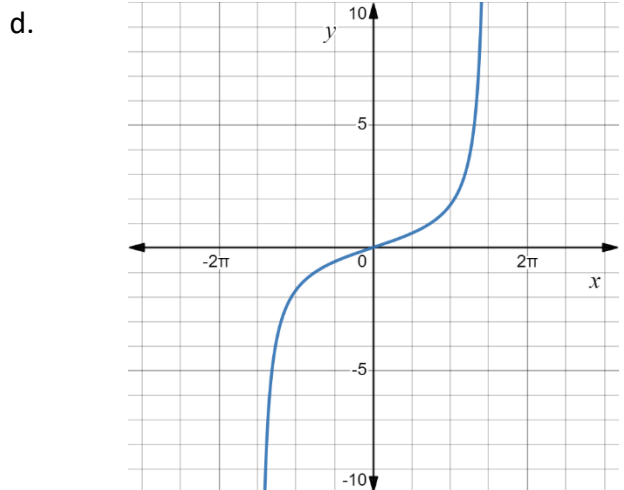
Function **No**
 Domain $\{x \mid -4 < x < 6, x \in \mathbb{R}\}$
 Range $\{y \mid -6 < y \leq 2, y \in \mathbb{R}\}$



Function **Yes**
 Domain $\{x \mid x \neq -3, 4, x \in \mathbb{R}\}$
 Range $\{y \mid y \neq -4, 4, y \in \mathbb{R}\}$



Function **No**
 Domain $\{x \mid x \geq -6, x \in \mathbb{R}\}$
 Range $\{y \mid y \in \mathbb{R}\}$



Function **Yes**
 Domain $\{x \mid -\frac{3\pi}{2} < x < \frac{3\pi}{2}, x \in \mathbb{R}\}$
 Range $\{y \mid y \in \mathbb{R}\}$

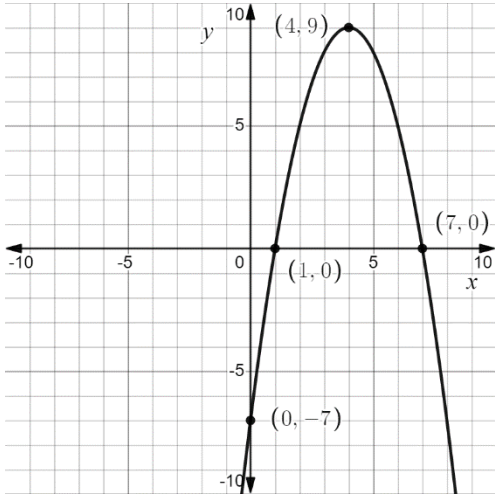
2. Determine whether each of the following equations represents a function. State the domain and range of the function and draw a sketch of the relation labeling any important points.

a. $y = -(x - 4)^2 + 9$

Function Yes

Domain $\{x | x \in \mathbb{R}\}$

Range $\{y | y \leq 9, y \in \mathbb{R}\}$

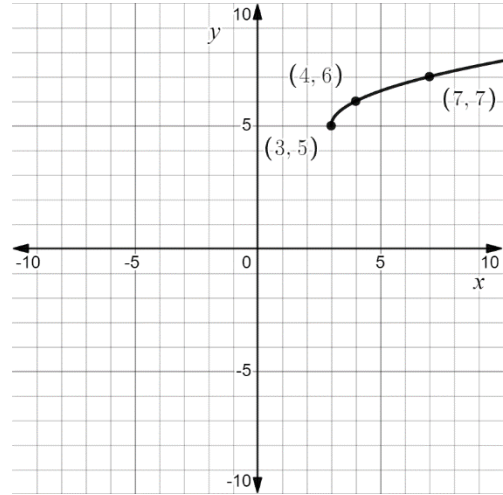


b. $y = \sqrt{x - 3} + 5$

Function yes

Domain $\{x | x \geq 3, x \in \mathbb{R}\}$

Range $\{y | y \geq 5, y \in \mathbb{R}\}$

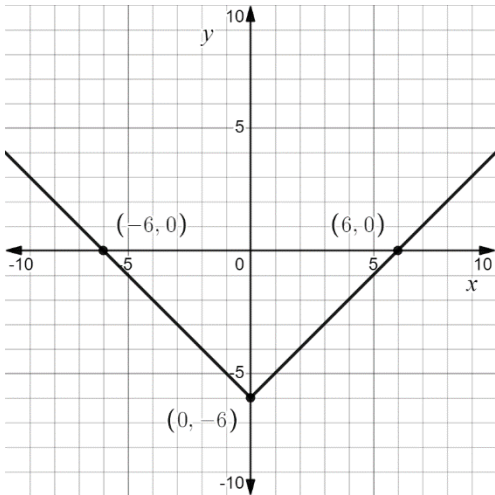


c. $y = |x| - 6$

Function Yes

Domain $\{x | x \in \mathbb{R}\}$

Range $\{y | y \geq -6, y \in \mathbb{R}\}$

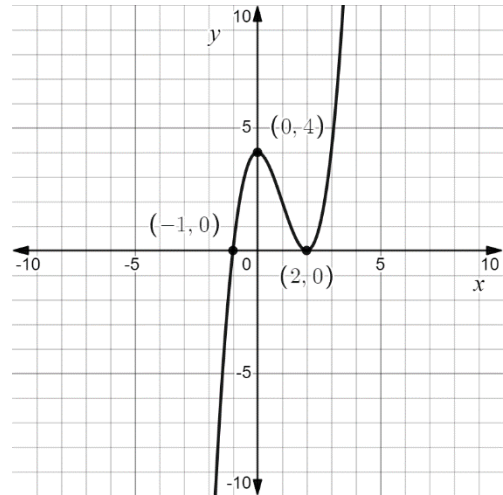


d. $y = (x - 4)^2(x + 1)$

Function yes

Domain $\{x | x \in \mathbb{R}\}$

Range $\{y | y \in \mathbb{R}\}$



3. Consider the functions then evaluate.

$$f(x) = (x - 4)^2 + 2$$

$$g(x) = \sqrt{x - 5}$$

a. $f(-8)$

$$\begin{aligned} f(-8) &= ((-8) - 4)^2 + 2 \\ &= (-12)^2 + 2 \\ &= 144 + 2 \\ &= 146 \end{aligned}$$

b. $g(3)$

$$\begin{aligned} g(3) &= \sqrt{(3) - 5} \\ &= \sqrt{-2} \\ &DNE \end{aligned}$$

c. $g(3x - 4)$

$$\begin{aligned} g(x) &= \sqrt{(3x - 4) - 5} \\ &= \sqrt{3x - 4 - 5} \\ &= \sqrt{3x - 9} \\ &= \sqrt{3(x - 3)} \end{aligned}$$

d. $f(g(x))$

$$\begin{aligned} f(g(x)) &= (\sqrt{x - 5} - 4)^2 + 2 \\ &= ((x - 5) - 8\sqrt{x - 5} + 16) + 2 \\ &= x - 5 - 8\sqrt{x - 5} + 16 + 2 \\ &= x - 8\sqrt{x - 5} + 13 \end{aligned}$$

Example Use the graph of $f(x)$ to determine the following.

a. $f(-2) = -2$

b. $f(x) = 4$ $x = 0, 4$

c. Domain $\{x \mid -5 \leq x < 8, x \in \mathbb{R}\}$

d. Range $\{y \mid -5 \leq y \leq 6, y \in \mathbb{R}\}$

e. Any local or global minimum value(s) of $f(x)$ and the value of x for which that happens.

$$\begin{aligned} \text{Global: } f(-5) &= -5 \\ \text{Local: } f(6) &= 2 \end{aligned}$$

f. Any local or global maximum value(s) of $f(x)$ and the value of x for which that happens.

$$\begin{aligned} \text{Global: } f(2) &= 6 \\ \text{Local: } f(8) &= 4? \end{aligned}$$

