

State the Domain and Range from a Continuous Graph

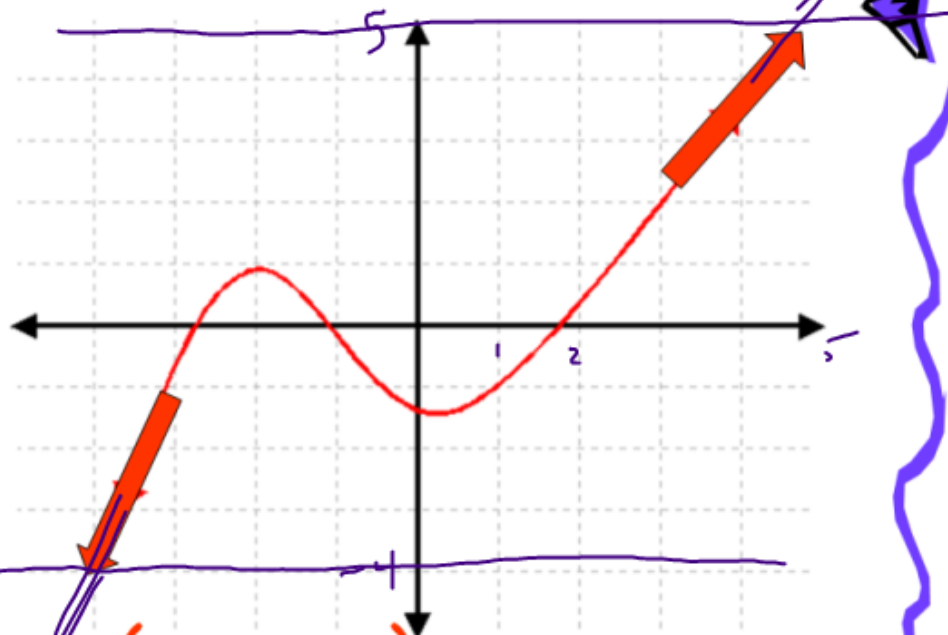
Ex 4

Domain:

$$(-\infty, \infty)$$

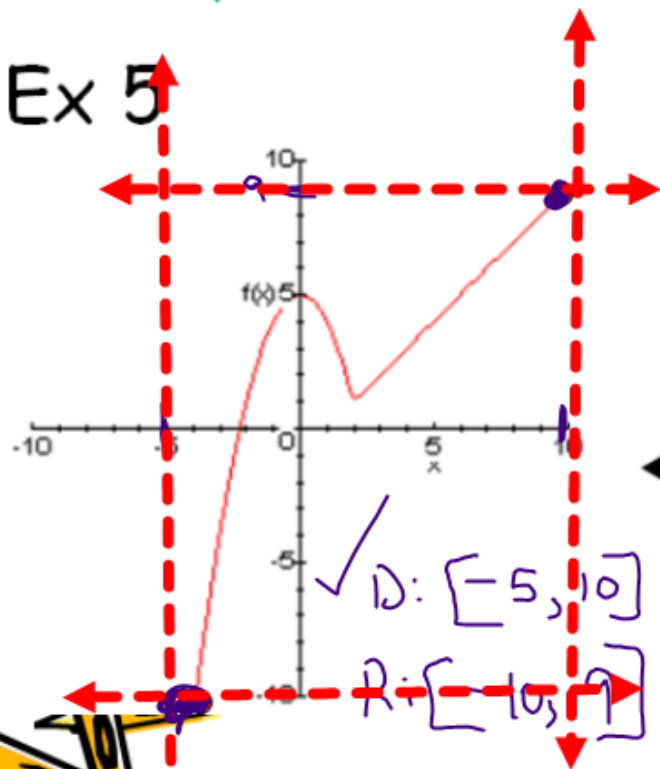
Range:

$$(-\infty, \infty)$$

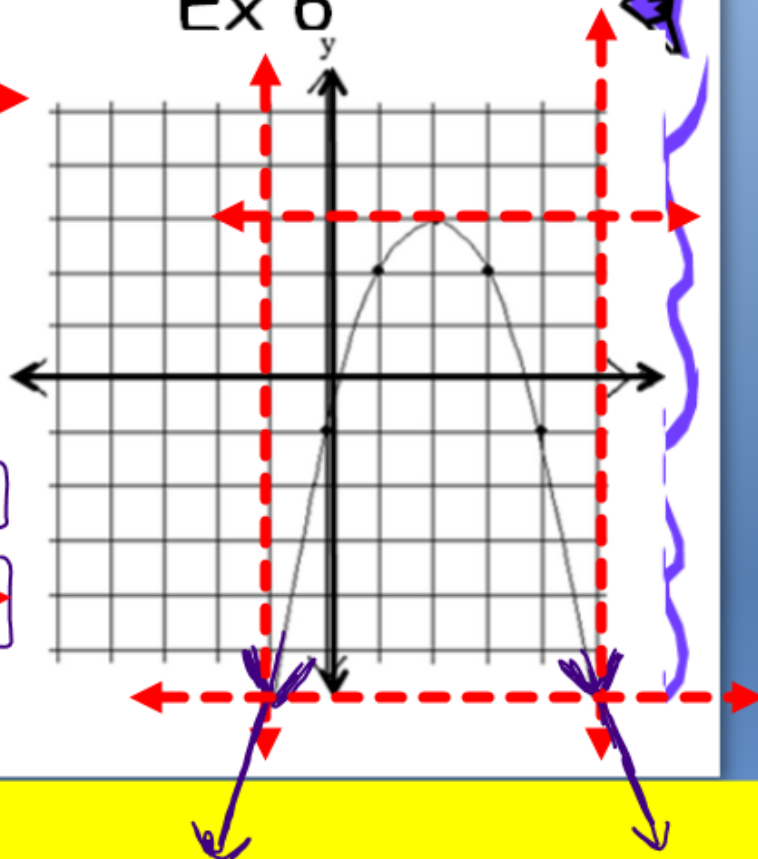


Try These on Your Own:

Ex 5



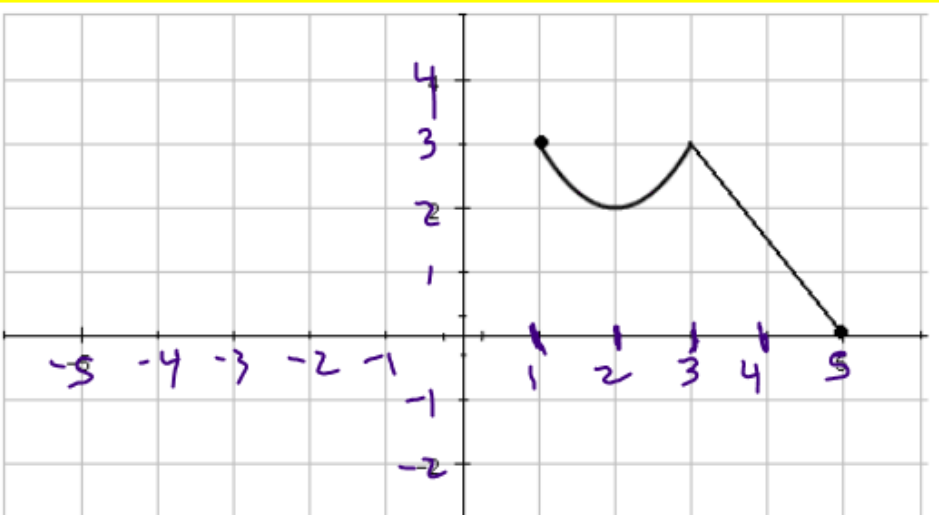
Ex 6



$$D: (-\infty, \infty)$$

$$R: (-\infty, 3]$$

Identify the domain and range of each function below



$$D: [1, 5]$$

$$R: [0, 3]$$



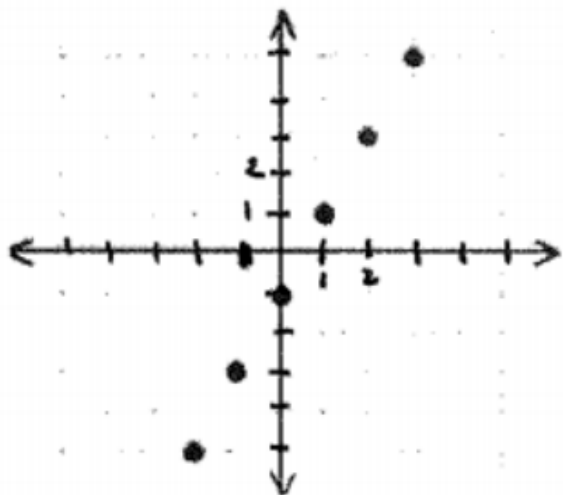
$$D: (-\infty, \infty)$$

$$R: (-\infty, 3]$$

- State the domain and range for each function. Use interval notation when appropriate.

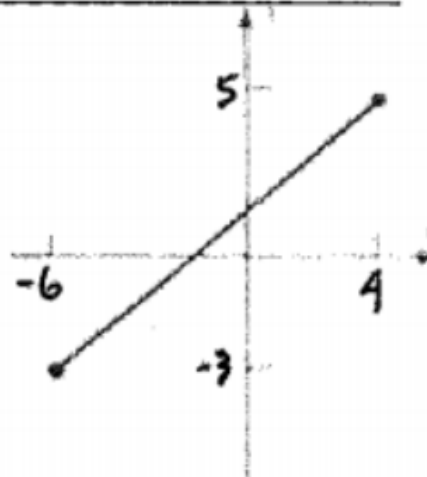
1. D: $\{-2, -1, 0, 1, 2, 3\}$

R: $\{-5, -3, -1, 1, 3, 5\}$



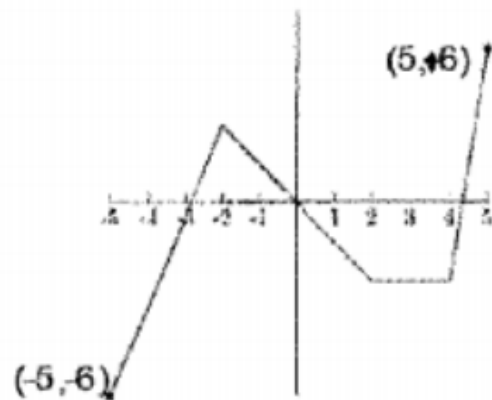
2. D: $[-6, 4]$ $-6 \leq x \leq 4$

R: $[-3, 5]$ $-3 \leq y \leq 5$



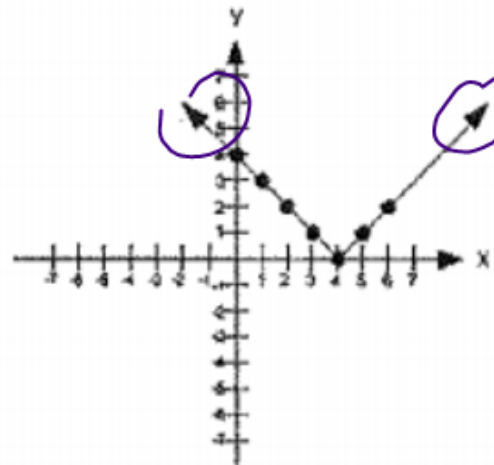
3. D: $[-5, 5]$ $-5 \leq x \leq 5$

R: $[-6, 6]$ $-6 \leq y \leq 6$



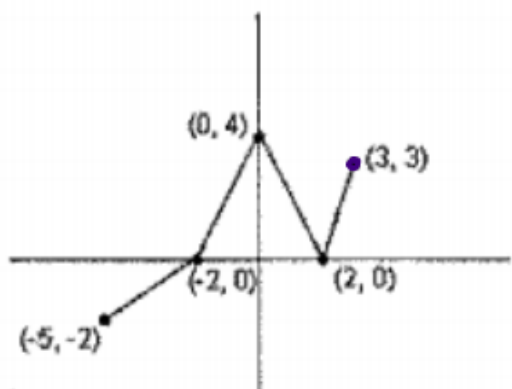
4. D: $(-\infty, \infty)$ $-\infty < x < \infty$

R: $[0, \infty)$ $0 \leq y < \infty$



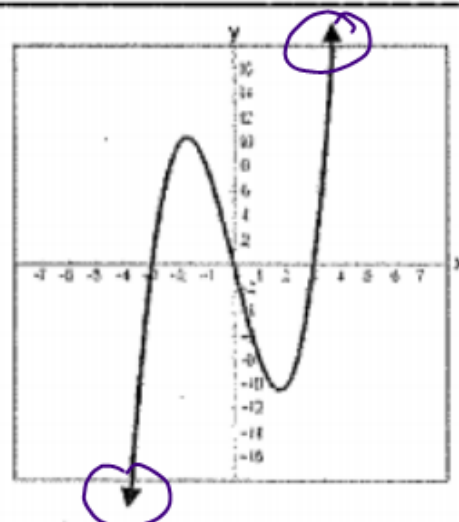
5. D: $[-5, 3]$ $-5 \leq x \leq 3$

R: $[-2, 4]$ $-2 \leq y \leq 4$



6. D: $(-\infty, \infty)$ $-\infty < x < \infty$

R: $(-\infty, \infty)$ $-\infty < y < \infty$



continuous
infinite
set of
points

What is function Notation?

$$y = f(x)$$

$$f(x) = f \text{ of } x$$

NOT multiplication

ex:

$$\underline{\underline{f(a)}} = f \text{ of } a$$

$x = a$ evaluate

$$\underline{\underline{f(x)}} = 3$$

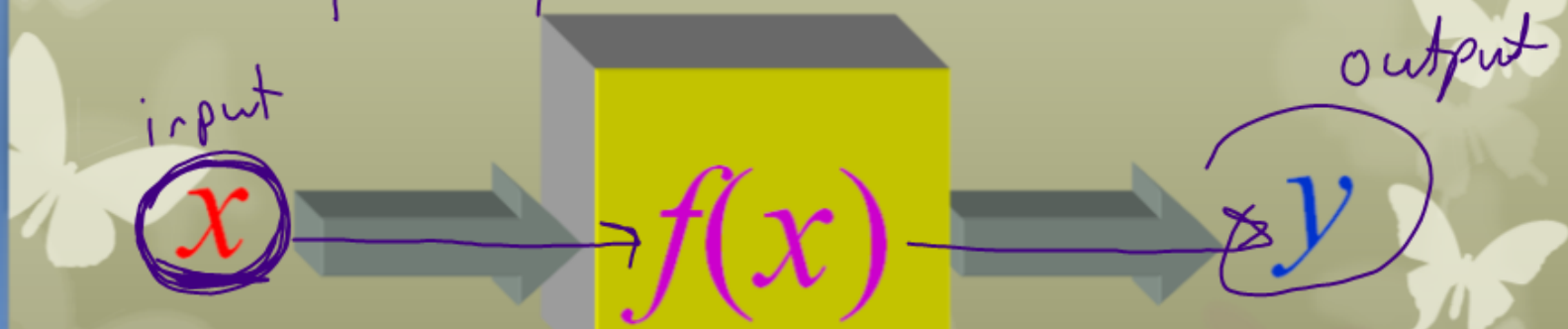
$y = 3$ find x

VOCABULARY RECALL

Function --- each element of the **domain** is paired with **exactly one** element of the **range**.

“**Machine**” uses “**input**” to give “**output**”

$$f(x) = 6x - 1 = y \quad y = f(x)$$



Function Notation

$$y = f(x)$$

Output

**Name of
Function**

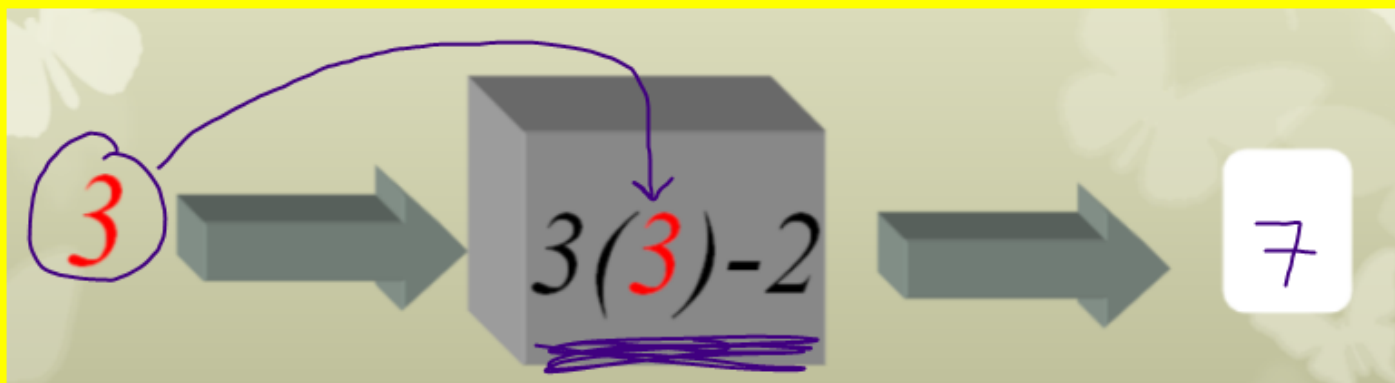
Input

Given $f(x) = 3x - 2$, find:

$$y = 3x - 2$$

$$f(\underline{3}) = 7$$

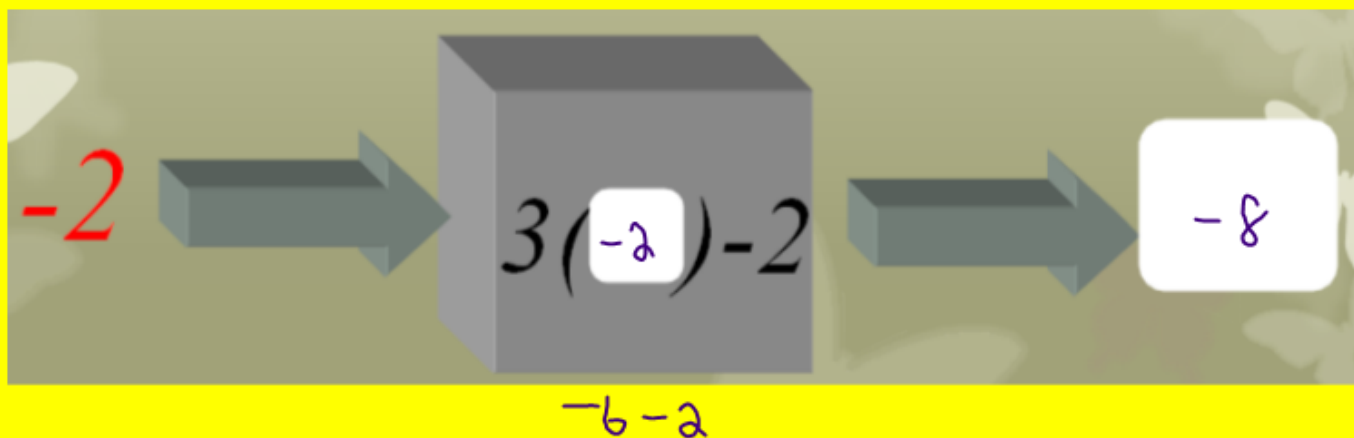
$x = 3$
find y



$$(3, 7)$$

Given $f(x) = 3x - 2$, find:

$$f(-2) = -8$$



$$\left(\underset{x}{-2}, \underset{y}{-8} \right)$$

What if you know **output**, not **input**?

Given $f(x) = 3x - 2$, find:

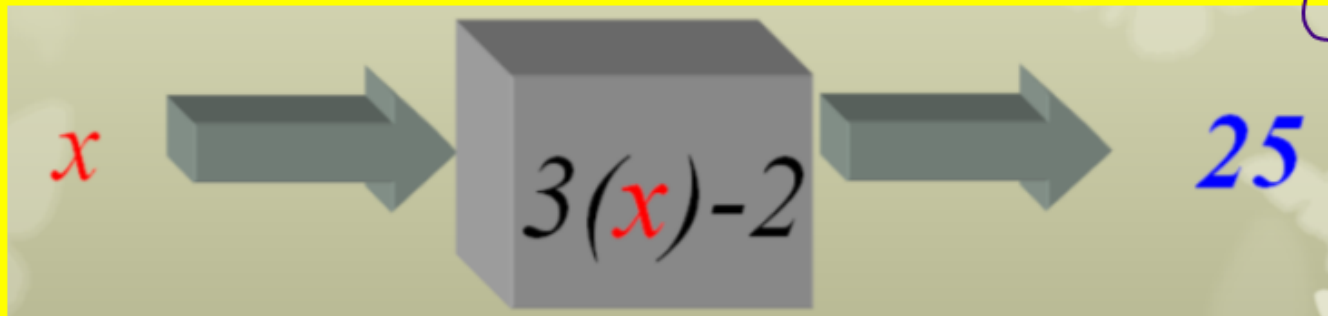
$$f(x) = 25 \quad y = 25$$

find x

$$x = 9$$

$$f(9) = 25$$

$$(9, 25)$$



$$3x - 2 = 25 \quad \text{solve for } x$$

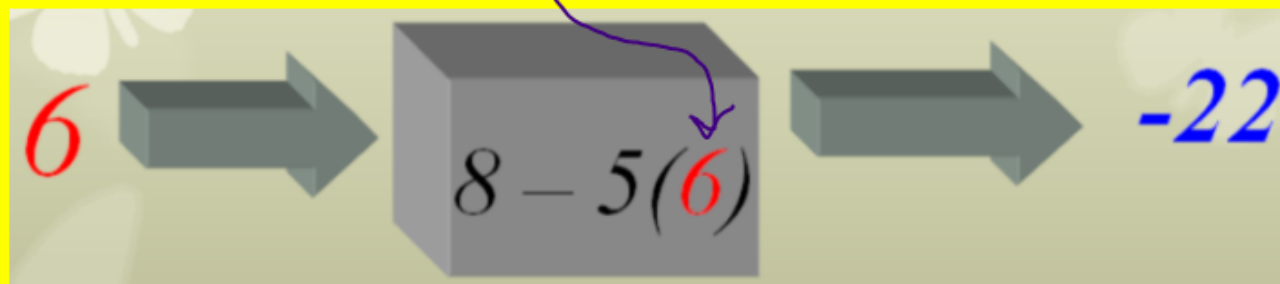
$$3x = 27$$

$$x = 9$$

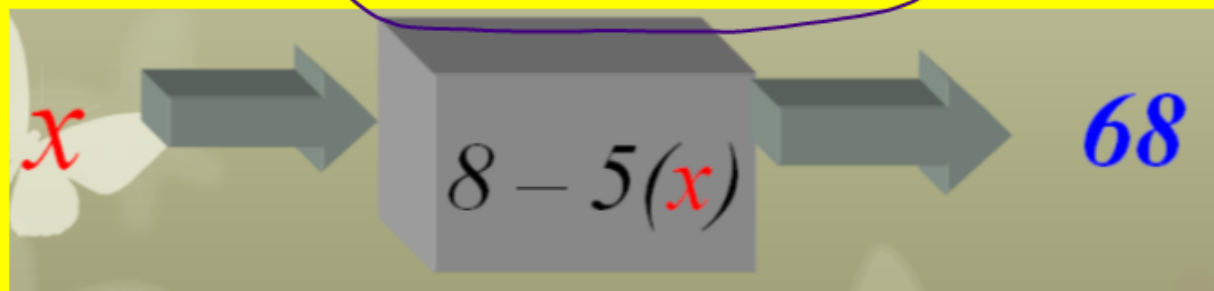
Given $g(x) = 8 - 5x$, find

$(6, -22)$

$$g(6) = -22$$



$$g(x) = 68$$



$$8 - 5x = 68$$

$$-5x = 60$$

$$x = -12$$

$$\begin{pmatrix} -12 \\ x \end{pmatrix}, \begin{pmatrix} 68 \\ y \end{pmatrix}$$

Try these on your own.

$$f(x) = -4x + 7$$

$$g(x) = \frac{1}{2}x - 9$$

$$g(30) = \frac{1}{2}(30) - 9$$

$$15 - 9$$

$$g(30) = 6$$

$$f(x) = -25 \quad -25 = -4x + 7$$

$$-32 = -4x$$

$$8 = x$$

$$f(-5) = -4(-5) + 7$$

$$20 + 7$$

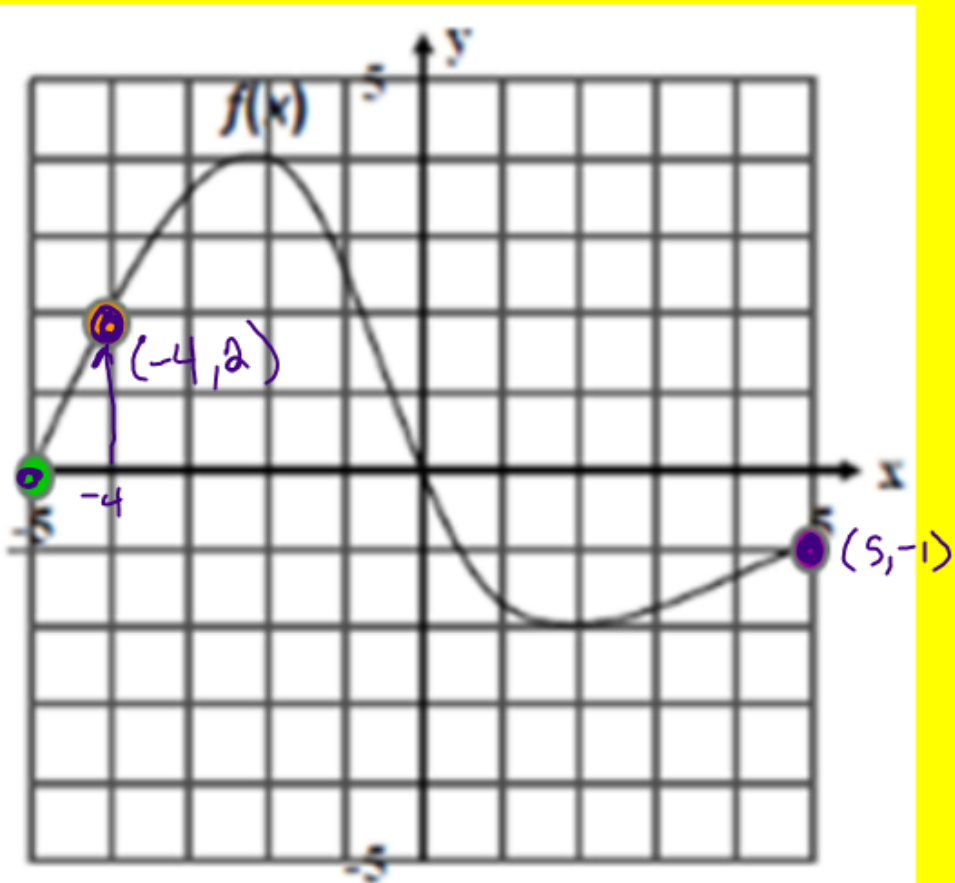
$$f(-5) = 27$$

$$g(x) = 3 \quad 3 = \frac{1}{2}x - 9$$

$$\frac{12}{\frac{1}{2}} = \frac{\frac{1}{2}x}{\frac{1}{2}}$$

$$24 = x$$

Evaluate Functions from Graphs



$$f(-5) = 0$$

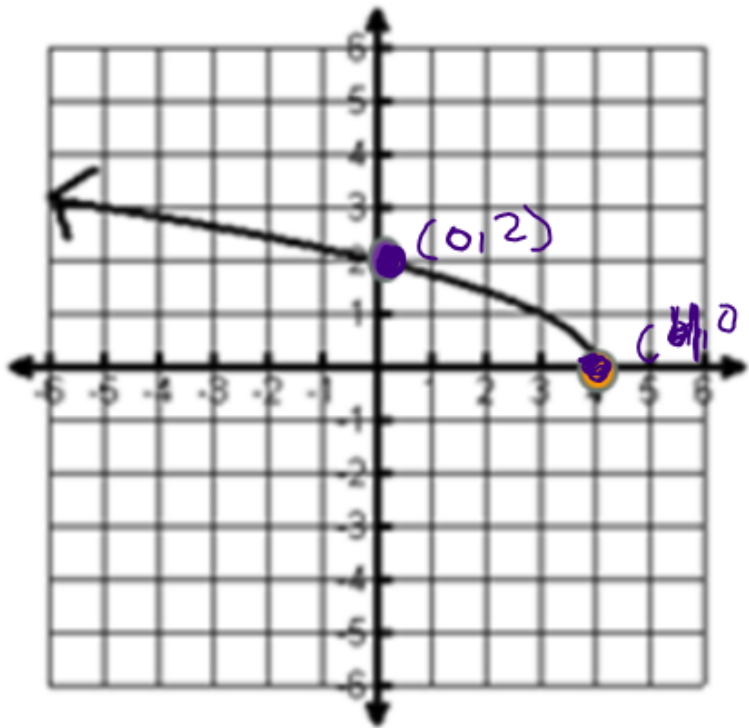
$(-5, 0)$

$(-5, ?)$

$$f(5) = -1$$

$(5, ?)$

$$f(-4) = 2$$



$$\underline{f(x) = 2}$$

$$(? , 2)$$

$$x = 0$$

$$f(x) = 0$$

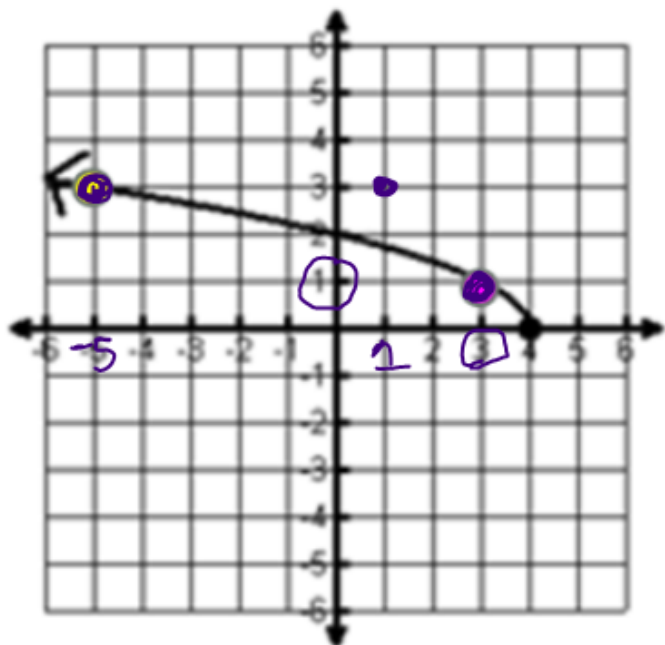
$$(? , 0)$$

$$x = 4$$

$y = 2$
find x

$y = 0$
find x

❖ Try these on your own.



$$f(x) = 3$$

$$(? , 3)$$

$$x = -5$$

$$f(3) = 1$$

$$(3, ?)$$

Homework #9

Evaluate Functions