

# HW: Domain and Range Worksheet

## Warm up:

Write a function for the line through  $(-5, 9)$  that is perpendicular to  $y = -4x + 7$

$$y = \frac{1}{4}x + b$$

$$9 = -\frac{1}{4}(-5) + b$$

$$\frac{36}{4} + \frac{5}{4} = -\frac{5}{4} + b$$

$$\frac{41}{4} = b$$

$$y = \frac{1}{4}x + \frac{41}{4}$$

**HW**

$$g(x) = x^2 + 5x$$

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

(41)

$$f(c-5)$$

$$-2(c-5) - 3$$

$$-2c + 10 - 3$$

$$\underline{-2c + 7}$$

(42)

$$5[f(d)]$$

$$5[-2d - 3]$$

$$\underline{-10d - 15}$$

$$\begin{aligned} \textcircled{2} \quad & g(-2) + 2 \\ & (-2)^2 + 5(-2) + 2 \\ & 4 - 10 + 2 \\ & -6 + 2 \\ & \textcircled{-4} \end{aligned}$$

$$\begin{aligned} & y = x^2 + 5x \\ & g(x) = x^2 + 5x \\ & f(x) = -2x - 3 \\ \textcircled{3} \quad & f(0) - 7 \\ & -2(0) - 3 - 7 \\ & 0 - 3 - 7 \\ & -3 - 7 \\ & \textcircled{-10} \end{aligned}$$

(40)

$$g(-6m)$$

$$(-6m)^2 + 5(-6m)$$

$$36m^2 - 30m$$

$$g(x) = x^2 + 5x$$

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

$$\textcircled{2} f(4)$$

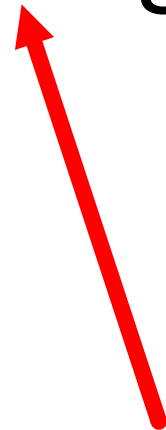
$$-2(4) - 3$$

$$-8 - 3$$

# Domain and Range



what x can be



what y can be

Find the domain and range.

$$\{(-2, 5), (4, -3), (0, 5), (4, 5)\}$$

$$D = \{-2, 0, 4\}$$

$$R = \{-3, 5\}$$

Write a rule for the relation and determine the domain and range.

$$\{(-1, -4), (0, -3), (3, 0), (4, 1)\}$$

$$D = \{-1, 0, 3, 4\}$$

$$R = \{-4, -3, 0, 1\}$$

$$y = x - 3$$

$$f(x) = x - 3$$

# Maps



State the domain and range.

$$\{(x, y) : y = -4x\}$$

$$D = \{x : x \in \mathbb{R}\}$$

$$R = \{y : y \in \mathbb{R}\}$$

"such that"

is an element of

all real numbers

State the domain and range.

$$\{(x, y) : y = 2|x|\}$$

$$D = \{x : x \in \mathbb{R}\}$$

$$R = \{y : y \geq 0\}$$

State the domain and range.

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

$$D = \{x : x \in \mathbb{R}\}$$

$$R = \{y : y \leq 0\}$$

Write a rule for each relation and state the domain and range.

1)  $\{(-1,-4), (0,0), (1,4), (3,12)\}$

2)  $\{(-1,1), (0,0), (1,1), (3,9), (5,25), (7,49)\}$

State the domain and range.

3)  $f(x) = 9x + 1$

$$D = \{x : x \in \mathbb{R}\}$$

$$R = \{y : y \in \mathbb{R}\}$$

4)  $x = 8$

$$D = \{8\}$$

$$R = \{y : y \in \mathbb{R}\}$$

5)  $y = -4$

$$D = \{x : x \in \mathbb{R}\}$$

$$R = \{-4\}$$

6)  $g(x) = 4x^2$

$$D = \{x : x \in \mathbb{R}\}$$

$$R = \{y : y \geq 0\}$$

7)  $p(x) = 5 + \sqrt{x}$

$$D = \{x : x \geq 0\}$$

$$R = \{y : y \geq 5\}$$

8)  $b(x) = |x| - 3$

$$D = \{x : x \in \mathbb{R}\}$$

$$R = \{y : y \geq -3\}$$

January 19, 2022

