

Introduction to Functions/Relations

NAME: _____
DATE: _____ BLOCK: _____

Function Notation

y and $f(x)$ mean the same thing.

$$y = 2x + 3$$

IS THE SAME AS

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

THE FUNCTION

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

IN WORDS

the function of x
is 2 times x plus 3

SUBSTITUTE

$$x = 2$$

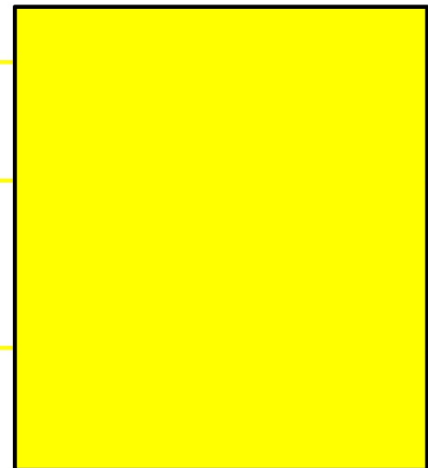
$$f(2) = 2(2) + 3$$

$$f(2) = 4 + 3$$

$$f(2) = 7$$

MEANING

the function of x ,
when $x = 2$ is 7



Introduction to Functions/Relations

NAME: _____
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Function Notation

y and $f(x)$ mean the same thing.

$$y = -\frac{1}{2}x + 3$$

IS THE SAME AS

$$f(x) = -\frac{1}{2}x + 3$$

THE FUNCTION

$$f(x) = -\frac{1}{2}x + 3$$

IN WORDS

the function of x is $-\frac{1}{2}$ times x plus 3

SUBSTITUTE

$$x = 2$$

$$f(2) = -\frac{1}{2}(2) + 3$$

$$f(2) = -1 + 3$$

$$f(2) = 2$$

MEANING

the function of x , when $x = 2$ is 2

$$f(x) = 7, x = ?$$

$$y = -\frac{1}{2}x + 3$$

$$f(x) = -\frac{1}{2}x + 3$$

Find:

$$f(2) = \left(-\frac{1}{2}\right)2 + 3$$

$$f(2) = -1 + 3$$

$$f(2) = 2$$

$$\text{If } f(x) = 7,$$

Find x .

$$f(x) = -\frac{1}{2}x + 3$$

$$7 = -\frac{1}{2}x + 3$$

$$\begin{array}{r} -3 \\ \hline \end{array}$$

$$(4 = -\frac{1}{2}x) \cdot 2$$

$$\boxed{-8 = x}$$

WARM UP: Copy and Complete HONORS

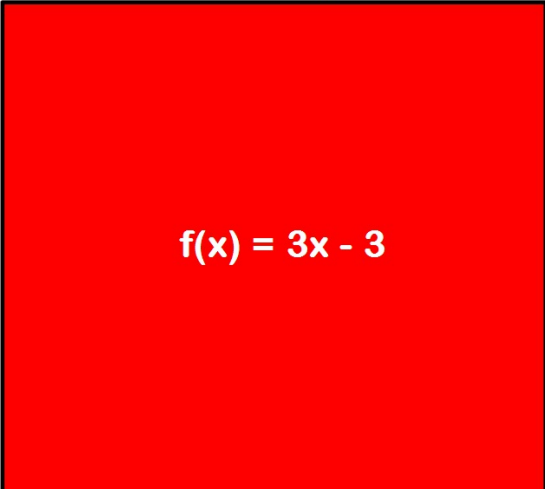
Determine whether each set of relations is a *function or not*.

1. (2 , 3), (3 , 2), (4 , 5), (6 , 1)

2. (2 , 4), (3 , 9), (-2 , 4), (-3 , 9)

The domain of the function $f(x) = 3x - 3$ is $\{-2, -1, 0, 1, 2\}$.

What is the range?


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

The function $w(x) = 250x$ represents the number of words $w(x)$ you can read in x minutes. How many words can you read in eight minutes?

**FUNCTION
NOTATION**

Using the function $f(x) = 3x - 2$, find the value of $f(3)$, $f(0)$, and $f(-2)$.

**IN
WORDS**

The domain of $f(x) = x^2 + 4$ is $\{1, 2, 3, 4\}$. Find the range.

Practice

Evaluate at the given number.

1) $f(x) = 3x - 8$

- a. $f(1) =$
- b. $f(-3) =$
- c. $f(5) =$
- d. $f(-6) =$
- e. $f(0) =$

5) $h(x) = 3x^2 + 7$

- a. $h(-4) =$
- b. $h(-2) =$
- c. $h(0) =$
- d. $h(3) =$
- e. $h(5) =$

9) $h(x) = -x^2 + 6x - 4$

- a. $h(-3) =$
- b. $h(-1) =$
- c. $h(0) =$
- d. $h(3) =$
- e. $h(6) =$

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

- a. $f(-5) =$
- b. $f(-2) =$
- c. $f(0) =$
- d. $f(4) =$
- e. $f(6) =$

6) $h(x) = 5 - x^2$

- a. $h(-4) =$
- b. $h(-1) =$
- c. $h(3) =$
- d. $h(5) =$
- e. $h(-7) =$

10) $h(x) = 7x - x^2 + 2$

- a. $h(-4) =$
- b. $h(-1) =$
- c. $h(1) =$
- d. $h(4) =$
- e. $h(8) =$

3) $g(x) = 7 - x$

- a. $g(-6) =$
- b. $g(-4) =$
- c. $g(-2) =$
- d. $g(4) =$
- e. $g(5) =$

7) $f(x) = 2x^2 + 4x + 9$

- a. $f(-4) =$
- b. $f(-7) =$
- c. $f(0) =$
- d. $f(5) =$
- e. $f(8) =$

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

- a. $g(-2) =$
- b. $g(0) =$
- c. $g(3) =$
- d. $g(-7) =$
- e. $g(-4) =$

4) $g(x) = -9 - 5x$

- a. $g(-3) =$
- b. $g(-2) =$
- c. $g(-1) =$
- d. $g(5) =$
- e. $g(8) =$

8) $f(x) = x^2 - 3x + 4$

- a. $f(-3) =$
- b. $f(0) =$
- c. $f(3) =$
- d. $f(6) =$
- e. $f(1) =$

12) $g(x) = 5x - 7 + x^2$

- a. $g(-7) =$
- b. $g(-4) =$
- c. $g(-1) =$
- d. $g(2) =$
- e. $g(4) =$

Evaluate the following expressions given the functions below:

$$g(x) = -3x + 1 \qquad g(10) =$$

$$f(x) = x^2 + 7 \qquad f(3) =$$

$$h(x) = 12 \qquad h(-2) =$$

$$j(x) = 2x + 9 \qquad j(7) =$$

Find x if $g(x) = 16$

Find x if $h(x) = -2$

Find x if $f(x) = 23$

Graphing a Function Rule


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How do you
graph a linear
equation using
a table?

Steps to Follow:

1. Solve for y (if needed)
2. Create a table
3. Substitute the values into the table
4. Graph the ordered pairs
5. Draw a line

Determine if the graph is linear or non-linear

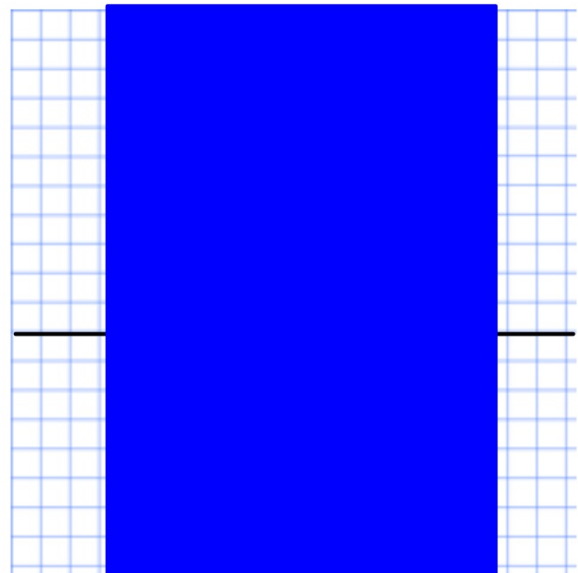
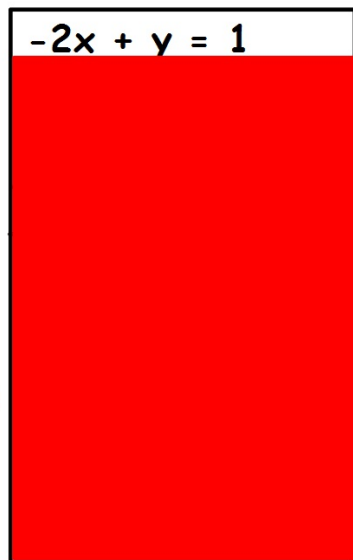
$$y = 2x + 1$$


Graph the equation: $-2x + y = 1$

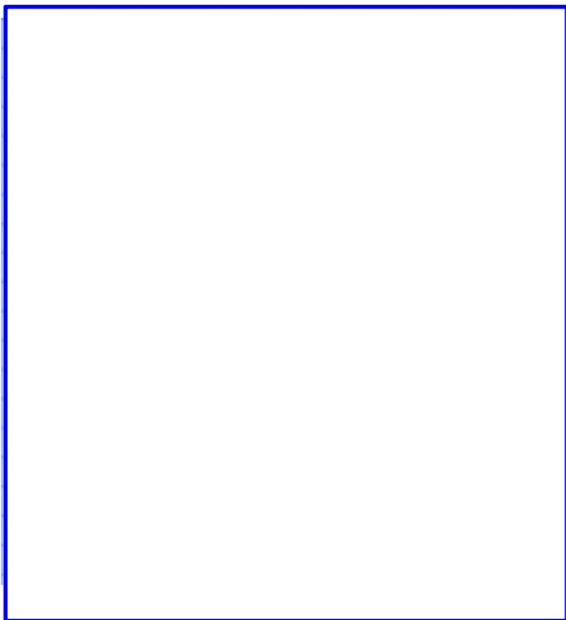
Steps to Follow:

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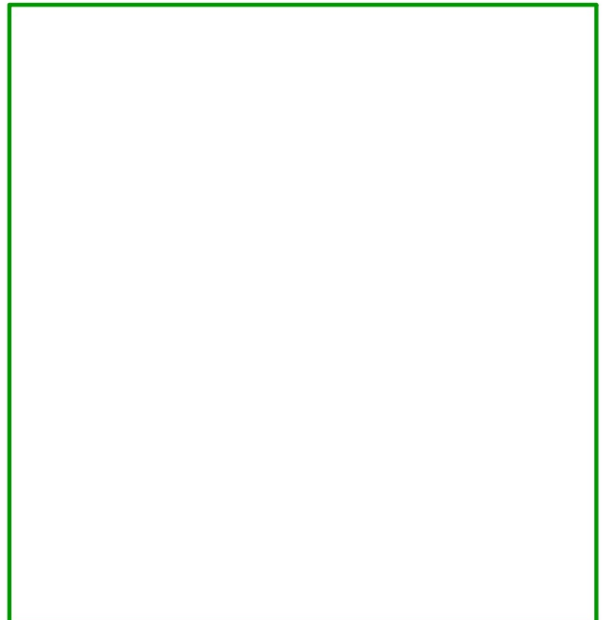
Determine if the graph is linear or non-linear



Graph the equation: $y = -1$



Graph the equation: $x = -1$



Classwork: Graph the following functions:

1. $y = x + 4$

2. $-2x - 3 = y$

3. $x + 2y = 4$

4. $y = 5$

5. $4 + y = 4x$

6. $y = -3x$

7. $x + y = 4$

8. $x = 4$

9. $5y + 5 = x$

10. $5 - y = -3x$

Each equation should have its own graph.

Each graph should be numbered 1-8 on each axis.

Graph the function $f(x) = x^2$

Steps to Follow:

1. Solve for y (if needed)
2. Create a table
3. Substitute the values into the table
4. Graph the ordered pairs
5. Draw a line

Determine if the graph is linear or non-linear

