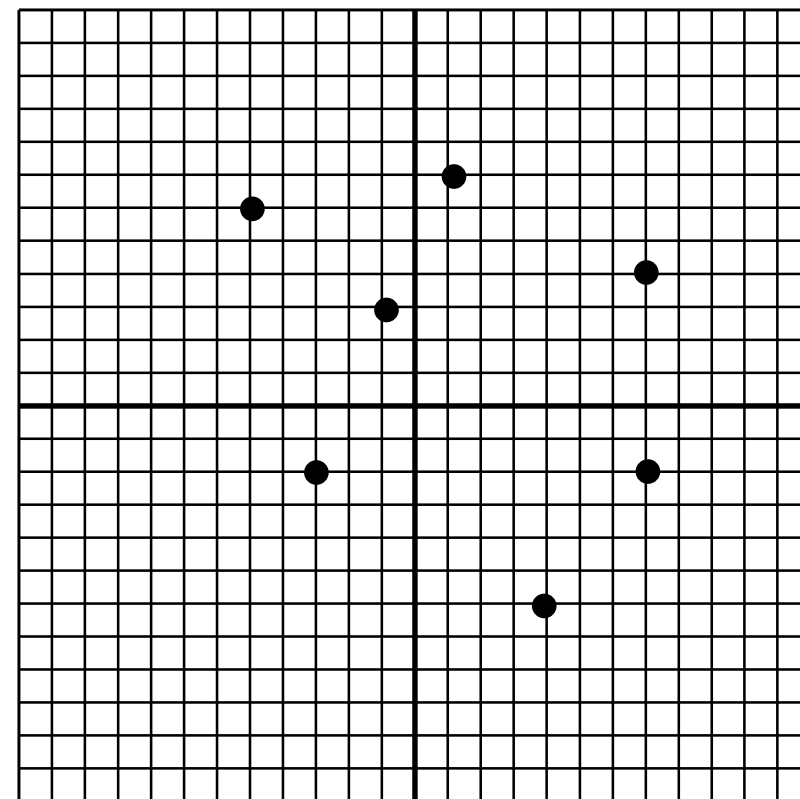


Bell Work

1. What is a function?
2. What is the domain of the number relationship to the right?
3. What is the range of the number relationship to the right?
4. Is the of the number relationship a function?



Today, you will learn function notation and evaluate functions at certain domain values.

$$f(x) = 5x + 6$$

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

$$h(t) = -\frac{1}{2}gt^2 + v_i t + h_i$$

Function notation is another way of writing an equation.

Same equations

$$f(x) = 3x - 4$$
$$y = 3x - 4$$

The name of the function.

$$g(y) = y^2 - 2y + 7$$

*Any letter can be the name of the function,
Any letter can be the name of the function,
but don't use the same name and variable,
but don't use the same name and variable.*

$$h(t) = -\frac{1}{2}gt^2 + v_i t + h_i$$

Function notation is another way of writing an equation.

$$f(x) = 3x - 4 \qquad y = 3x - 4$$

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

Substitute the number in parenthesis for the variable and evaluate.

$$f(-4) = 3(-4) - 4 = -16$$

$$f\left(\frac{15}{2}\right) = 3\left(\frac{15}{2}\right) - 4 = \frac{37}{2} = 18.5$$

Evaluate the function for each number in the replacement set.

$$f(x) = 2x^2 - 3x + 2; \{-5, 2, 3.5\}$$

Substitute each number in for x and calculate.

$$f(-5) = 2(-5)^2 - 3(-5) + 2 = 67$$

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

$$f(3.5) = 2(3.5)^2 - 3(3.5) + 2 = 16$$

Evaluate the function for each number in the replacement set.

$$g(x) = x^2 + 4x - 9; \left\{ -3, 0, \frac{8}{3}, 8 \right\}$$

Substitute each number in for x and calculate.

$$g(-3) = (-3)^2 + 4(-3) - 9 = -12$$

$$g(0) = (0)^2 + 4(0) - 9 = -9$$

$$g\left(\frac{8}{3}\right) = \left(\frac{8}{3}\right)^2 + 4\left(\frac{8}{3}\right) - 9 = \frac{64}{9} + \frac{32}{3} - 9 = \frac{79}{9}$$

$$g(8) = (8)^2 + 4(8) - 9 = 97$$

Assignment:

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For each function, evaluate $f(0)$, $f\left(\frac{3}{2}\right)$, and $f(-1)$.

12. $f(x) = 7x - 4$

13. $f(x) = -x^2 + x$

14. $f(x) = -2x^2 + 1$

A set of input values is sometimes referred to as the *replacement set* for the independent variable. Evaluate each function for the given replacement set.

23. $f(x) = 3x - 6; \left\{-3.5, -1, \frac{1}{4}, 2, 11\right\}$

24. $f(x) = x(1 - 2x); \left\{-8, \frac{2}{3}, 1, 9, 4\right\}$

25. $f(x) = \frac{2x - 1}{3}; \left\{-4, 0, \frac{1}{2}, 5\right\}$

26. $f(x) = (x - 1)^2 + 4; \left\{-6, -\frac{3}{2}, 1, 4\right\}$

Determine whether each relation is a function. (*Lesson 1-6*)

65. $\left\{(-1, -5), (-2, 0.5), (-4, 5), \left(-5, \frac{1}{2}\right)\right\}$

66. $\{(-1, 3), (-1, 4), (-1, 5), (-1, 6)\}$