

4.7 Function Notation

"f of x"

Function notation is another way of writing an equation. Function notation allows us to specify what x value we are inputting into our equation.

Main Idea: $f(x)$ replaces y

Function Notation

Equation of a Graph of the Function

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

$$f(5) = 2(5) + 3$$

$$f(5) = 13$$

$$y = 13$$

$$(5, 13)$$

$$y = 2x + 3 \text{ when } x=5$$

$$y = 2(5) + 3$$

$$y = 13$$

$$(5, 13)$$



Ex.) Consider the function $f(x) = 4x + 5$ and $g(x) = 4 - x$. Evaluate:

a) $g(1)$ b) $f(-2)$ c) $g(-2)$ d) $f(0) - g(0)$

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

$$g(1) = 4 - 1$$

$$g(1) = 3$$

$$f(x) = 4x + 5$$

$$f(-2) = 4(-2) + 5$$

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

$$g(-2) = 4 - (-2)$$

$$g(-2) = 6$$

$$f(x) = 4x + 5$$

$$f(0) = 4(0) + 5$$

$$f(0) = 5$$

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

$$g(0) = 4 - 0$$

$$g(0) = 4$$

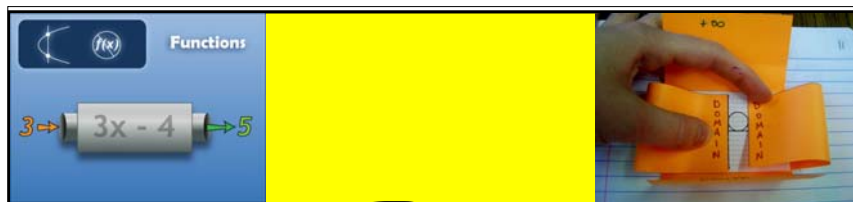
$$5 - 4 = 1$$

Ex.) If $P(x) = -6x + 1$, determine a simplified expression for $P(2x)$.

$$P(x) = -6x + 1$$

$$P(2x) = -6(2x) + 1$$

$$P(2x) = -12x + 1$$



Ex 3) Consider the function $f(x) = 8x - 5$.

a) Evaluate $f(4)$ $x = 4$ $y = 11$

$$f(x) = 8x - 5$$

$$f(4) = 8(4) - 5$$

$$f(4) = 27$$

b) Solve the equation $f(x) = 11$

$$f(x) = 8x - 5$$

$$11 = 8x - 5$$

$$+5 \quad +5$$

$$16 = 8x$$

$$\frac{16}{8} = \frac{8x}{8}$$

$$2 = x$$

c) Solve the equation $f(x) = 75$.

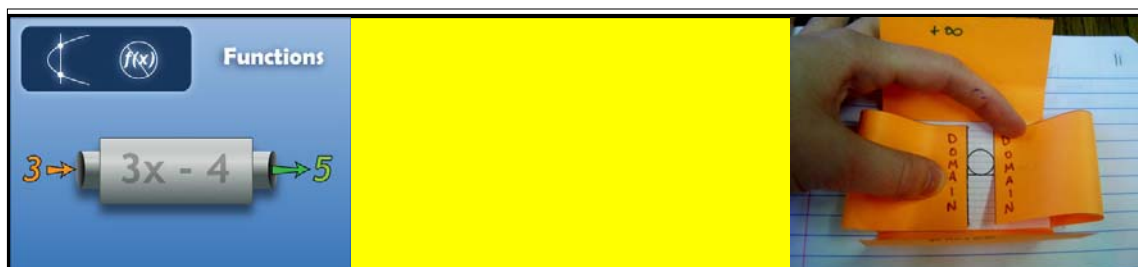
$$f(x) = 8x - 5$$

$$75 = 8x - 5$$

$$+5 \quad +5$$

$$80 = 8x$$

$$\frac{80}{8} = \frac{8x}{8}$$

$$10 = x$$


Important Skill:

You need to be able to tell the difference between:

$$f(x) = 5 \quad \text{and} \quad f(8)$$