Name: Key

Date: _____

UNIT 6

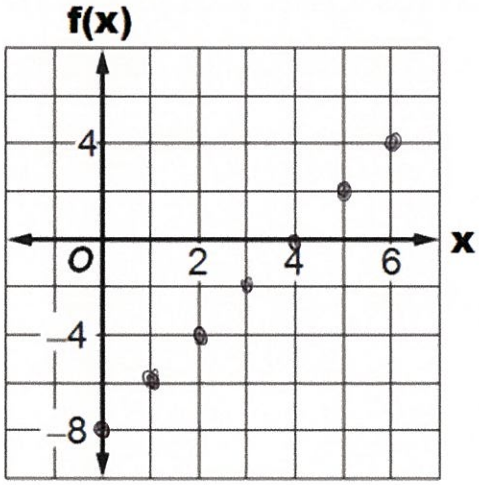
LESSON 4

Do Now: What is the domain of the relation shown below? $\{(4,2),(1,1),(0,0),(1,-1),(4,-2)\}$

1) $\{0,1,4\}$
2) $\{-2,-1,0,1,2\}$
3) $\{-2,-1,0,1,2,4\}$
4) $\{-2,-1,0,0,1,1,1,2,4,4\}$

Aim: How Do We Evaluate Functions Algebraically?

x	f(x)
0	-8
1	-6
2	-4
3	-2
4	0
5	2
6	4

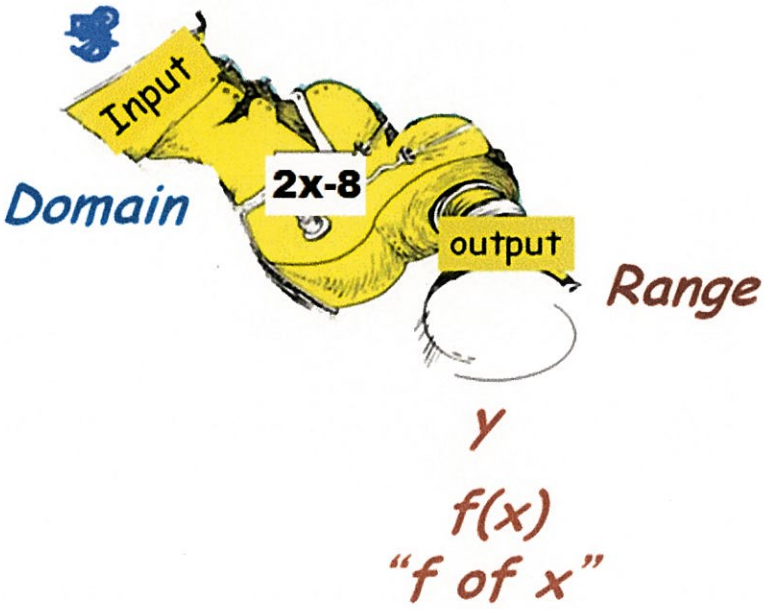


The most popular function notation is $f(x)$ which is read "f of x".
This is **NOT** the multiplication of f times x..

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

input value

output value



If the questions asks to "find f(#)" then I need to Substitute in for x and solve for f(x).

1. Evaluate the following function: **f(x) = 2x + 13**

Find f(4)	Find f(-1)
$f(4) = 2(4) + 13$ $f(4) = 21$	$f(-1) = 2(-1) + 13$ $f(-1) = 11$

2. Evaluate the following function: **h(x)= -3x + 5**

Find h(12)	Find h(-10)
$h(12) = -3(12) + 5$ $h(12) = -31$	$h(-10) = -3(-10) + 5$ $h(-10) = 35$

3. Evaluate the following function: **$g(x) = 4x^2 + 7$**

Find g(2)	Find g(-4)
$g(2) = 4(2)^2 + 7$ $g(2) = 23$	$g(-4) = 4(-4)^2 + 7$ $g(-4) = 71$

If the questions asks to "find f(x) = #" then I need to substitute in for x and solve for f(x).

4. Evaluate the following function: **f(x) = 2x + 3**

Find f(x) = 11	Find f(x) = -5
$11 = 2x + 3$ $-3 \quad -3$ $\frac{8}{2} = \frac{2x}{2}$ $x = 4$	$-5 = 2x + 3$ $-3 \quad -3$ $\frac{-8}{2} = \frac{2x}{2}$ $x = -4$

5. Evaluate the following function: **$g(x) = 3x^2 + 7$**

Find g(x) = 34	Find g(x) = 82
$34 = 3x^2 + 7$ $-7 \quad -7$ $\frac{27}{3} = \frac{3x^2}{3}$ $\sqrt{9} = \sqrt{x^2}$ $x = \pm 3$	$82 = 3x^2 + 7$ $-7 \quad -7$ $\frac{75}{3} = \frac{3x^2}{3}$ $\sqrt{25} = \sqrt{x^2}$ $x = \pm 5$

6. Evaluate the following function: **h(x) = -5x + 1**

a) Find h(-8)

$$h(-8) = -5(-8) + 1$$

$$h(-8) = 41$$

b) Find h(x) = -4

$$-4 = -5x + 1$$

$$-1 \qquad -1$$

$$\frac{-5}{-5} = \frac{-5x}{-5}$$

$$x = 1$$

7. Evaluate the following function: f(x) = 3x + 4

a. Find f(2)

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

$$f(2) = 10$$

b. Find x if f(x) = 19

$$19 = 3x + 4$$

$$-4 \qquad -4$$

$$\frac{15}{3} = \frac{3x}{3}$$

$$x = 5$$