IF.2: Function Notation Notes

Name: _____
Date: _____

Ex 1). If $f(x) = -\frac{3}{2}x + 10$, find f(-2).

$f(-2) = -\frac{3}{2}(-2) + 10$

$f(-2) = 13$

Ex 2). For $f(x) = 2x - 5$, find x if f(x) = -1

$-1 = 2x - 5$

$+5 \quad +5$

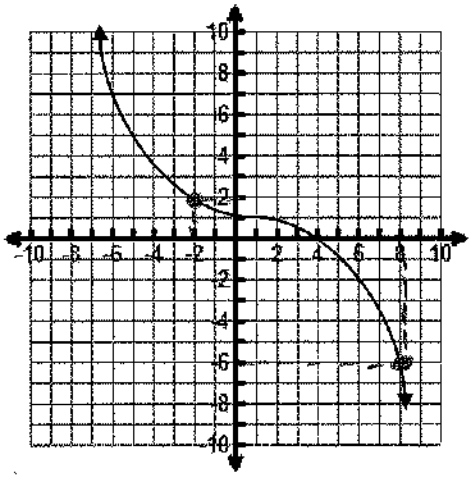
$\frac{4}{2} = \frac{2x}{2}$

$x = 2$

Ex 3).

$f(-2) = 2$ ($x = -2$, $y = 2$)

If f(x) = -6, x = 8 ($y = -6$)



3. An athlete training for a marathon decides to start running 5 miles a day. Write a function, T, for amount of miles the athlete will run in d days.

Practice Problems

Use the functions below, to evaluate each.

$f(x) = -3x + 9$ $\quad g(x) = \frac{1}{2}x - 12$ $\quad h(x) = 6(3)^x - 7$

1. f(1) = 6
2. f(-3) = 18
3. h(2) = 47 ($6(3)^2 - 7$)
4. g(4) = -10
5. g(3/4) = $-\frac{93}{8}$ = -11.625
6. h(-2) = -6.83 ($6(3)^{-2} - 7$, $\frac{6}{9} - 7$)
7. f(x) = 12 $\quad -3x + 9 = 12$ $\quad x = -1$
8. g(x) = 4 $\quad \frac{1}{2}x - 12 = 4$ $\quad 2 \cdot \frac{1}{2}x = 16 \cdot 2$ $\quad x = 32$

IF.2: Functional Notation Assignment **NAME:**_____

1. Evaluate the following expressions given the functions below:

$g(x) = -3x + 1$ $f(x) = x^2 + 7$ $h(x) = \frac{12}{x}$ $j(x) = 2x + 9$

a. $g(10) =$ -29

b. $f(3) =$ 16

c. $h(-2) =$ -6

d. $j(7) =$ 23

e. $h(a) = \frac{12}{a}$

f. $g(b+c) = -3(b+c)+1$
$-3b-3c+1$

h. Find x if $g(x) = 16$
$-3x+1=16$
$-3x=15$
$x=-5$

i. Find x if $h(x) = -2$
$\frac{12}{x} = -2$
$x=-6$

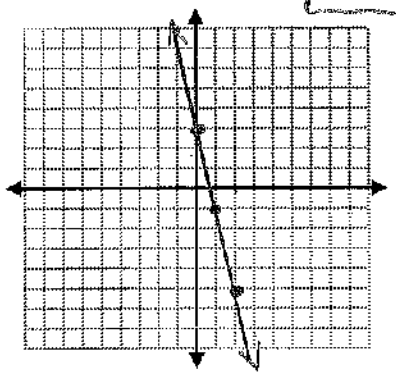
j. Find x if $f(x) = 23$
$x^2+7=23$
$x^2=16$ ← what squared equals 16?
$x=\pm 4$

2. Given $f(x) = 3 - 4x$. Fill in the table and then sketch a graph.

x	$f(x)$
-6	27
-3	15
0	3
1	-1
2	-5

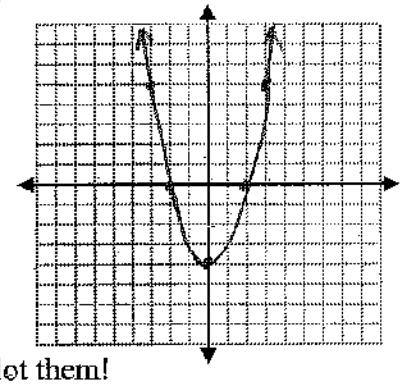
$3-4x=3$

$3-4x=-5$
$-4x=-8$



3. Given. $f(x) = x^2 - 4$ Fill in the table and then sketch a graph.

x	$f(x)$
3	5
0	-4
-2	0
2	0
-3	5



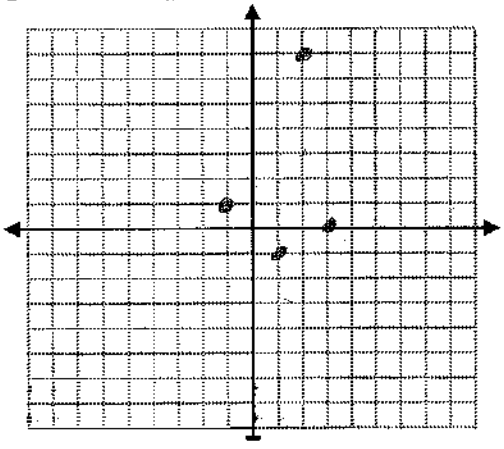
4. Translate the following statements into coordinate points, then plot them!

a. $f(-1) = 1$ $(-1,1)$

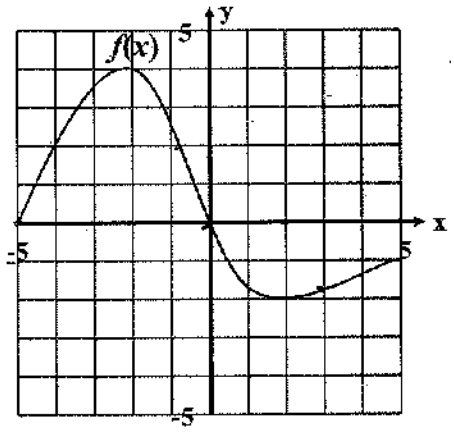
b. $f(2) = 7$ $(2,7)$

c. $f(1) = -1$ $(1,-1)$

d. $f(3) = 0$ $(3,0)$



5. Given this graph of the function f(x):



Find:

a. $f(-4) = 2$ **b.** $f(0) = 0$ **c.** $f(3) = -2.75$ **d.** $f(-5) = 0$

e. x when $f(x) = 2$ $x = -1.75$

f. x when $f(x) = 0$ $x = -5, 0$

* **6.** Find an equation of a linear function given $h(1) = 6$ and $h(4) = -3$.
(NOTE: Same as write the equation of the line given two points!)

Extra

$(1, 6)$ & $(4, -3)$

$m = \frac{-3-6}{4-1} = \frac{-9}{3} = -3$

$y = -3x + 9$

$y = mx + b$

$6 = -3(1) + b$

$6 = -3 + b$

$+3 \quad +3$

$9 = b$

APPLICATION

7. Swine flu is attacking Porkopolis. The function below determines how many people have swine where t = time in days and S = the number of people in thousands.

$$S(t) = 9t - 4$$

a. Find $S(4)$.

$S(4) = 9(4) - 4 = 32$

b. What does $S(4)$ mean?

@ 4 days, 32 thousand people attacked

c. Find t when $S(t) = 23$.

$9t - 4 = 23$

$9t = 27$

$t = 3$

d. What does $S(t) = 23$ mean?

@ 3 days, 23 thousand people had swine flu

e. Graph the function.