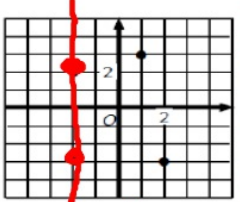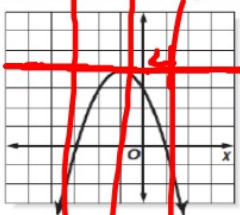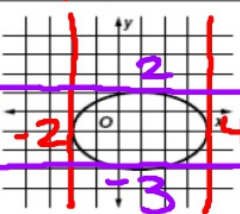**2/6/19**

*Pick up a copy from the stool

WarM—UP!!

①

$\{(-5, 3), (-1, 0), (3, -4), (-1, 2)\}$

Domain: $\{-5, -1, 3\}$

Range: $\{-4, 0, 2, 3\}$

Function? NO

②

(-2, 2)
(-2, -3)
(1, 3)
(2, -3)

Domain: $\{-2, 1, 2\}$

Range: $\{-3, 2, 3\}$

Function? NO

③

Domain: $-\infty \leq x \leq \infty$

Range: $y \leq 4$

Function? yes

④

2
-2   4
-3

Domain: $-2 \leq x \leq 4$

Range: $-3 \leq y \leq 2$

Function? NO

Most missed question from test:

If -5x + 80 > 2x - 25 and x is an integer, what is the greatest possible value of x + 5? $x < 15$

14 + 5

A. 39   B. 20   (C. 19)   D. 15

$$-5x + 80 > 2x - 25$$
$$-2x \qquad -2x$$
$$\overline{\qquad\qquad\qquad}$$
$$-7x + 80 > -25$$
$$-80 \quad -80$$
$$\overline{\qquad\qquad\qquad}$$
$$\frac{-7x}{-7} > \frac{-105}{-7}$$
$$x < 15$$

Function Notation

Equations can be written in a form called function notation.
We use this as a quick way to evaluate functions for a given input.

Example:

$$y = 2x - 8 \implies f(x) = 2x - 8$$

This is read as $\underline{f \text{ of } x \text{ equals...}}$

To evaluate a function for a specific value, substitute the value in for _____

1 $f(x) = x + 7$

a. $f(5) = 5+7$
$$f(5) = 12$$

b. $f(-1) = -1+7$
$$f(-1) = 6$$

c. $f(-3)$
$$= -3+7$$
$$f(-3) = 4$$

2 $g(x) = 3x - 8$

a. $g(1)$
$$g(1) = 3(1) - 8 = -5$$

b. $g(-3)$
$$g(-3) = 3(-3) - 8 = -1$$

c. $g(0)$
$$g(0) = 3(0) - 8 = -$$

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

a. $h(-3) = \frac{2}{3}(-3) - 1 = -3$

b. $h(0) = \frac{2}{3}(0) - 1 = -1$

c. $h(9) = \frac{2}{3}(9) - 1 = 5$

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

a. $f(-4) = (-4)^2 - (-4)$
$(-4)^2 + 4 = 2$

b. $f(-1) = (-1)^2 - (-1)$
$(-1)^2 + 1 = 2$

c. $f(7) = (7)^2 - 7 = 42$

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

6 $f(x) = -x^2 + 6x - 4$

a. $h(-4) = 3(-4)^2 + 7$
$3(16) + 7$
$48 + 7 = 55$

b. $h(-2)$

c. $h(0) = 3(0)^2 + 7$
$3(0) + 7$
$0 + 7$
7

a. $f(-3)$
$f(-3) = -(-3)^2 + 6(-3) - 4$
$-9 - 18 - 4 = -31$

b. $f(-1)$
$f(-1) = -(-1)^2 + 6(-1) - 4$
$-1 - 6 - 4 = -11$

c. $f(5)$
$f(5) = -(5)^2 + 6(5) - 4$
$-25 + 30 - 4 = 1$

7 $g(x) = -\frac{1}{2}x + 9$

a. $g(-8) = -\frac{1}{2}(-8) + 9$
$$4 + 9 = 13$$

b. $g(-2) = -\frac{1}{2}(-2) + 9$
$$1 + 9 = 10$$

c. $g(0)$
$$= -\frac{1}{2}(0) + 9$$
$$0 + 9 = 9$$

8 $h(x) = 2 - 4x$

a. $h(-5)$
$$h(-5) = 2 - 4(-5)$$
$$2 + 20 = 22$$

b. $h(-2)$
$$h(-2) = 2 - 4(-2)$$
$$2 + 8 = 10$$

c. $h(4)$
$$h(4) = 2 - 4(4)$$
$$2 - 16 = -14$$

$x^2 + 4x - 9$

(10) $g(x) = |x - x^2|$

a. $g(4) = |(4) - (4)^2| = |4 - 16|$

$|-12| = 12$

b. $g(-7) = |(-7) - (-7)^2|$

$|(-7) - (49)|$

c. $g(-3)$ $|-56| = 56$

$g(-3) = |(-3) - (-3)^2|$

$|(-3) - (9)|$

$|-12| = 12$

1 Anthropologists use the length of certain bones of human skeleton to estimate the height of the living person. One of these bones is the femur. To estimate the height in centimeters of a female with a femur length of x, the function $h(x) = 61.41 + 2.32x$ can be used.

a. Find $h(46)$

$61.41 + 2.32(46)$

168.13 cm

b. What does this mean?

Height of the female

(How tall she is)

12 *Given the graph of the function f(x), find each of the following.*

f(x)

(-4, 2)

(0,0)

(2,-2) (5,-1)
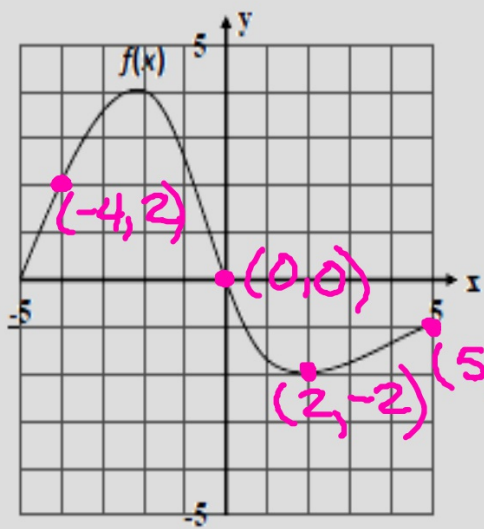
a. $f(\overset{x}{-4}) = 2$

b. $f(0) = 0$

c. $f(2) = -2$

d. $f(5) = -1$

Graphing Functions

$f(x) = 2x - 3$

Example: $y = 2x - 3$

$f(-1) = 2(-1) - 3$
$ = -2 - 3$
$ = -5$

$f(0) = 2(0) - 3$
$ = -3$

x	y
-1	-5
0	-3
2	1
4	5

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

HINT: $f(4) = 2(4) - 3$
$ = 5$

$y = 2(-1) - 3$
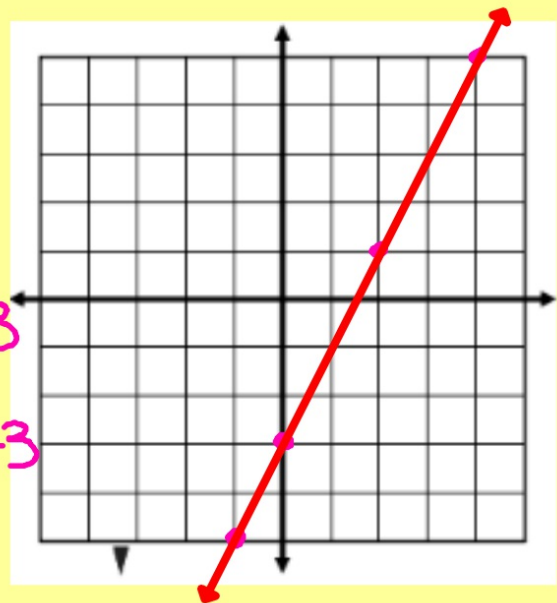
1. $y = x + 4$

x	y
-5	
-4	
-2	
0	
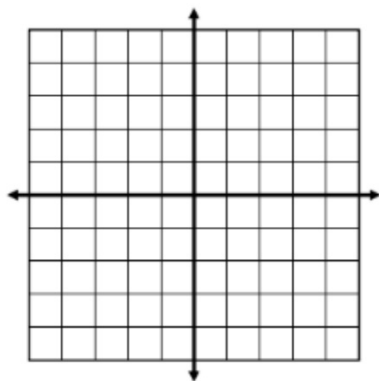
2. $y = \dfrac{3}{4}x - 2$

x	y
-4	
0	
4	
8	
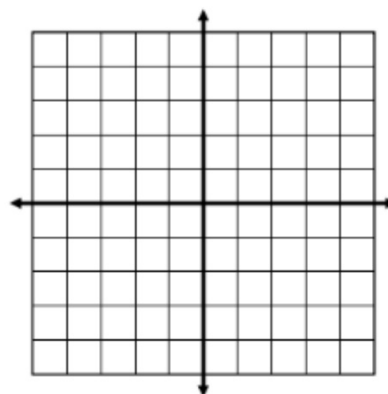
3. $y = 3x$

x	y
-2	
-1	
0	
1	
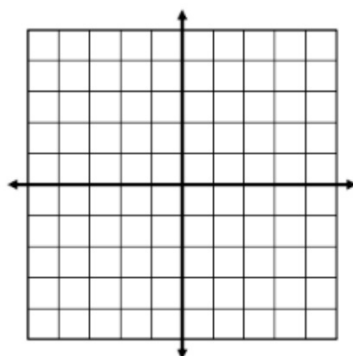
4. $y = -\dfrac{3}{2}x + 2$

x	y
-2	
0	
2	
4	
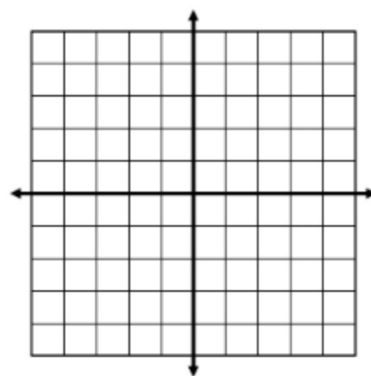
5. $y = -x + 1$

x	y
-3	
-1	
0	
4	

6. $y = 1 - \dfrac{1}{3}x$

x	y
-3	
0	
3	
6	