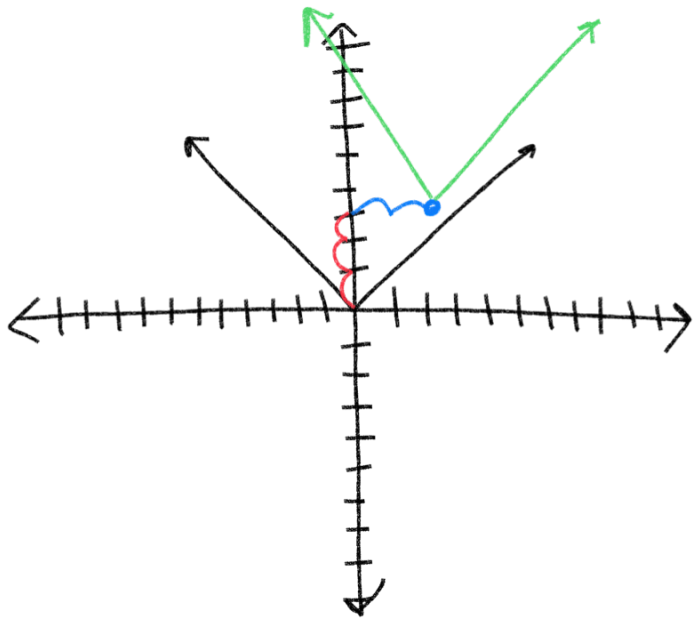
T-A2 Algebra 2 Week 14 12/13

$y = |x - 2| + 3$

up 3

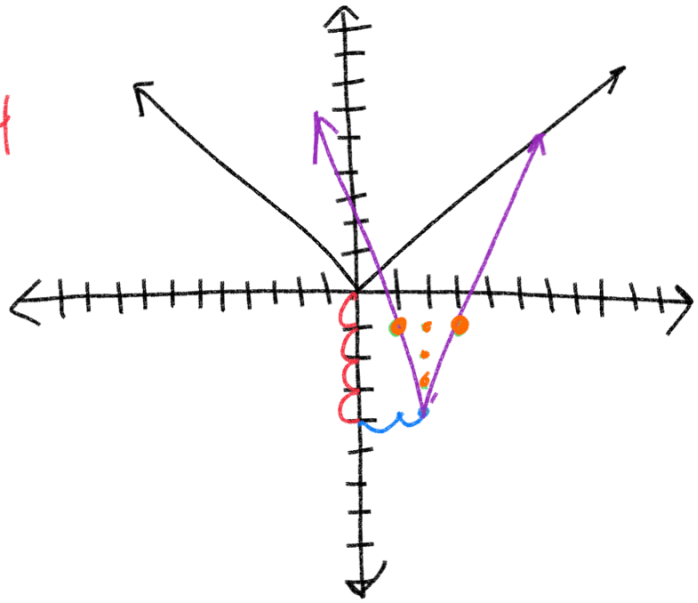


$y = \left|\frac{3}{3}x - \frac{6}{3}\right| - 4$

$y = +|3(x - 2)| - 4$

slope $\frac{\text{up } 3}{1 \text{ over}}$

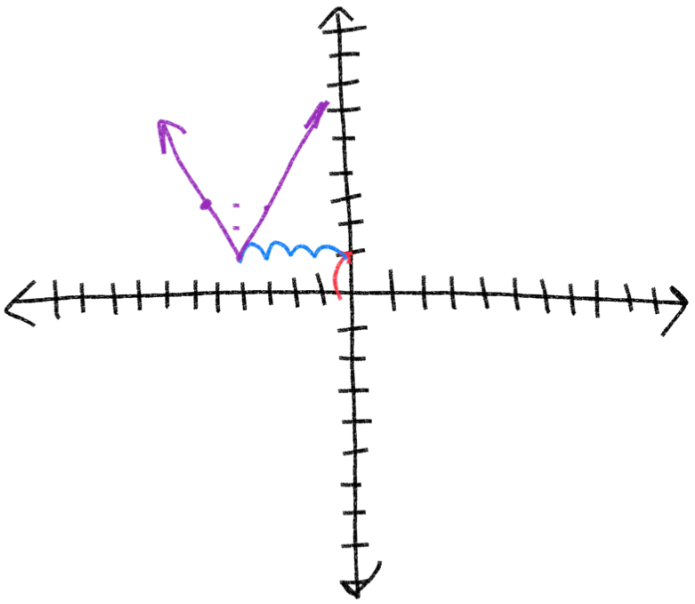
down 4



$y = \left|\frac{2x}{2} + \frac{8}{2}\right| + 1$

$y = |2(x+4)| + 1$

slope 2 | left 4 | up

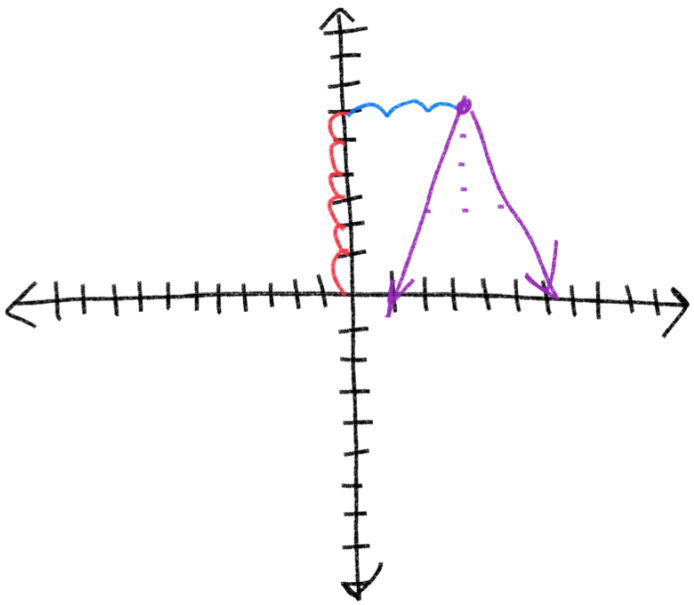


$y = -\left|\frac{4x}{4} - \frac{12}{4}\right| + 6$

flip

$= -|4(x-3)| + 6$

right 3 | up 6

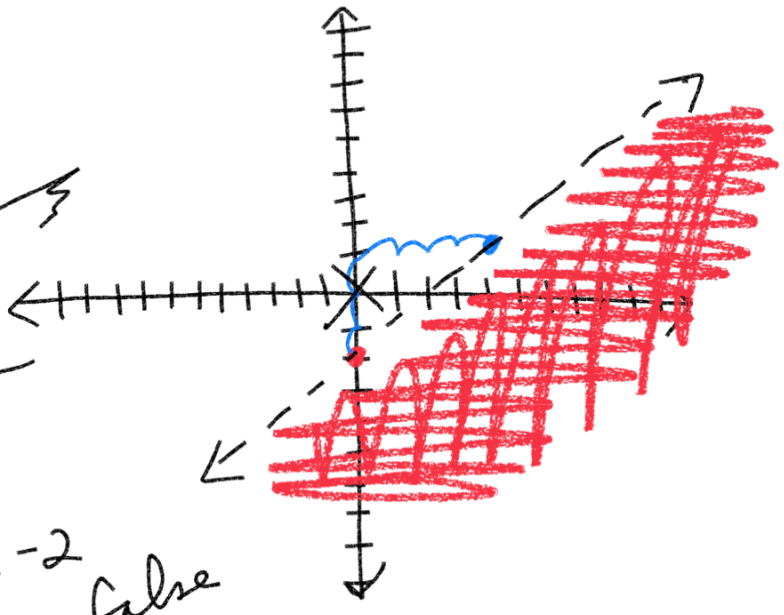


$y < \frac{3}{4}x - 2$

1st y-int

2nd

3 up
4 right



(0,0)

$y < \frac{3}{4}x - 2$

$0 < \frac{3}{4}(0) - 2$

$0 < -2$

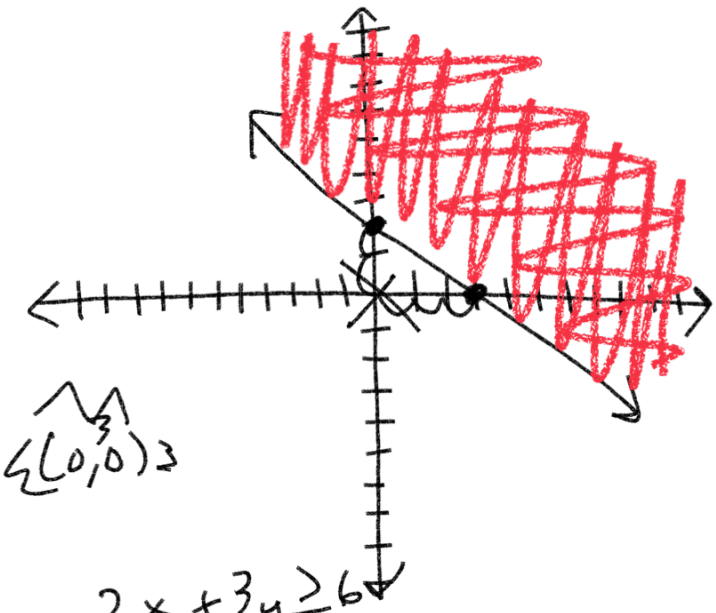
false

$$2x + 3y \geq 6$$
$$-2x \qquad -2x$$

$$\frac{3y}{3} \geq \frac{-2x}{3} + \frac{6}{3}$$

$$y \geq -\frac{2}{3}x + 2$$

$-\frac{2}{3} \rightarrow \frac{\text{down 2}}{3 \text{ right}}$



$2x + 3y \geq 6$
$0 \geq 6$ false

Algebra 2 Chapter 2 Pre-Test

1.) (8 pts total, 4 pts each) For the following function, determine *f*(3) and *f*(-2).

a) $f(x) = x^2 - 4x + 5$

$f(3) = (3)^2 - 4(3) + 5$

$9 - 12 + 5$

$-3 + 5 = 2$ $\quad f(3) = 2$

b) $f(x) = \frac{5x-6}{2x}$

2.) (8 pts total, 4 pts each) Suppose $f(x) = 3x - 5$ and $g(x) = x^2 + 6$

a) Find $\frac{g(3)}{f(2)}$.

$\frac{g(3)}{f(2)} = \frac{(3)^2+6}{3(2)-5} = \frac{9+6}{6-5} = \frac{15}{1} = 15$

For what value(s) of x would $\frac{g(x)}{f(x)}$ not be a function, if any.

$\frac{g(x)}{f(x)} = \frac{x^2+6}{3x-5}$

$3x - 5 \neq 0$

$+5 \quad +5$

$\frac{3x}{3} \neq \frac{5}{3}$

$x \neq \frac{5}{3}$

b) Find $f(-1) \cdot g(0)$

For what value(s) of x would $f(x) \cdot g(x)$ not be a function, if any.

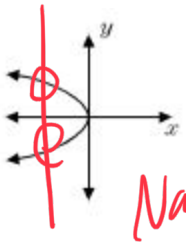
domain

radicals

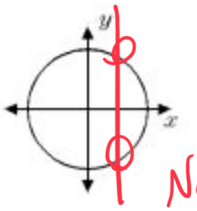
$\sqrt{x+3}$

$x + 3 \geq 0$

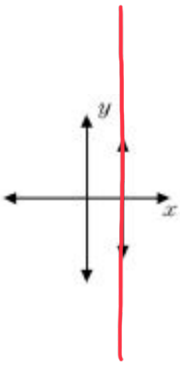
3.) (8 pts total, 2 pts each) Which of the following graphs represents a function? Write either "function" or "not a function".

a) 

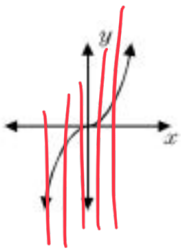
Naw

b) 

Naw

c) 

Naw

d) 

yes

4.) (8 pts total, 4 pts each) Write the equation for the line formed by each slope and point. Include both slope-intercept and point-slope forms.

a) (-2, 4), m = -3

x y

$y - y_1 = m(x - x_1)$

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

$y = mx + b$

$4 = (-3)(-2) + b$

$4 = 6 + b$

$-6 \quad -6$

$-2 = b$

$y = mx + b$

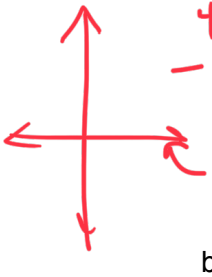
$y = -3x - 2$

b) (0, -5), m = ½

5.) (8 pts total, 4 pts each) Find the slope and intercepts for each of the following lines:

$y = mx + b$

a) $4x + 6y = -12$



$4x + 6y = -12$
$-4x \quad -4x$

$\frac{6y}{6} = \frac{-4x}{6} - \frac{12}{6}$

x-int $y = 0$

$4x + 6(0) = -12$

$\frac{4x}{4} = \frac{-12}{4}$

$x = -3$

y-int $x = 0$

$4(0) + 6y = -12$

$\frac{6y}{6} = \frac{-12}{6}$

$y = -2$

b) $7x - 2y = 10$

$y = \frac{-4}{6}x - 2$

$y = \frac{-2}{3}x - 2$

$m = -\frac{2}{3}$

6.) (8 pts total, 4 pts each) Find the slope for each of the following:

a) (-5, 3) and (7, -1)

$x_2 \; y_2 \quad x_1 \; y_1$

$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{3 - (-1)}{-5 - 7} = \frac{3+1}{-5-7}$

$\frac{4}{-12} = -\frac{1}{3}$

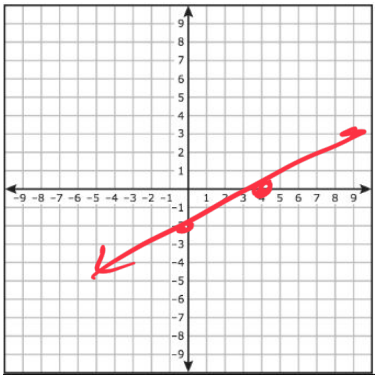
b) (-2, 6) and (4, -9)

7.) (8 pts total, 4 pts each) Graph each of the following equations:

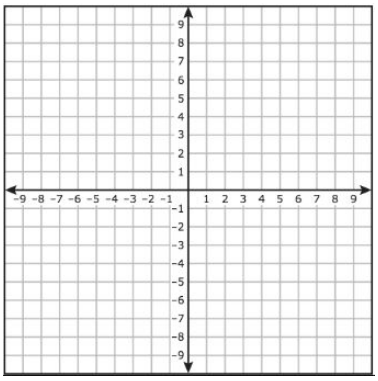
a) 5x - 10y = 20

$5x = 20$ $-10y = 20$

$x = 4$ $y = -2$



b) 16x + 8y = 48



8.) (8 pts total, 4 pts each) Determine the equation for each of the following:

a) Write the equation for a line through (-2, 7) and perpendicular to y = -2x + 5.

$y = mx + b$

$7 = \left(\frac{1}{2}\right)(-2) + b$

$7 = -1 + b$

$+1 \quad +1$

$8 = b$

opposite/inverse

$2 \rightarrow \frac{1}{2} = m$

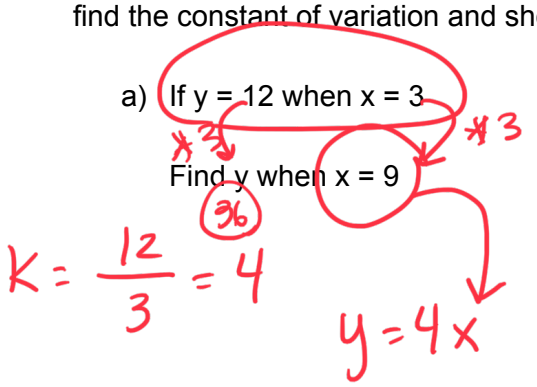
$y = \frac{1}{2}x + 8$

b) Write the equation for a line parallel to y = 3x - 2 that passes through (1, -3)

9.) (8 pts total, 4 pts each) Each of the following depicts a direct variation function. For each, find the constant of variation and show the relationship in an equation.

a) If y = 12 when x = 3

Find y when x = 9



$y = kx$ $\quad \frac{y}{x} = \frac{kx}{x}$ $\quad k = \frac{y}{x}$

$y = 4(9) = 36$

b) If y = -6 when x = 15

Find x when y = 2

10.) (8 pts total, 4 pts each) For each of the following, determine whether y varies directly with x. If so, find the constant of variation and write the equation.

a)

x	y
-1	-4
2	8
3	12

$k = \frac{y}{x}$

$-4/-1 = 4$

$8/2 = 4$

$12/3 = 4$

$k = 4$

yes

$y = kx$

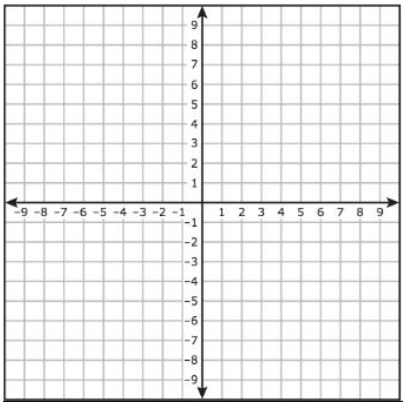
$y = 4x$

b)

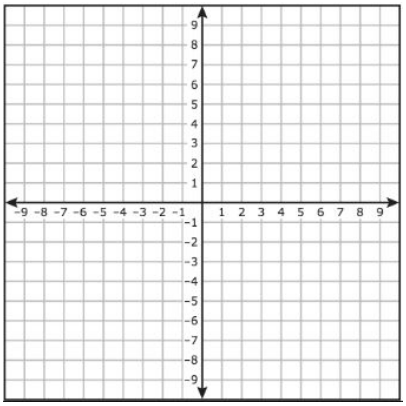
x	y
-3	9
0	1
1	4

11.) (6 pts total, 3 pts each) For each of the following, find the vertex of the absolute value function. Then graph the function.

a) $f(x) = |2x + 3| - 5$

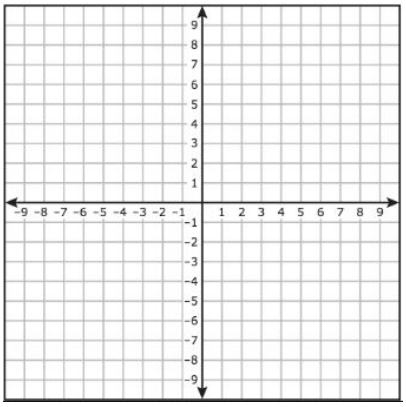


b) $f(x) = |1/2x - 2| + 6$

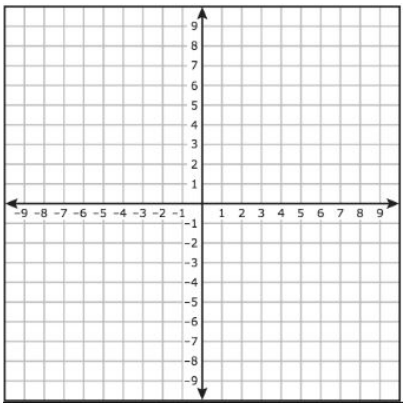


12.) (6 pts total, 3 pts each) For each of the following, find the vertex of the absolute value function. Then graph the function.

a) $f(x) = |x - 6|$

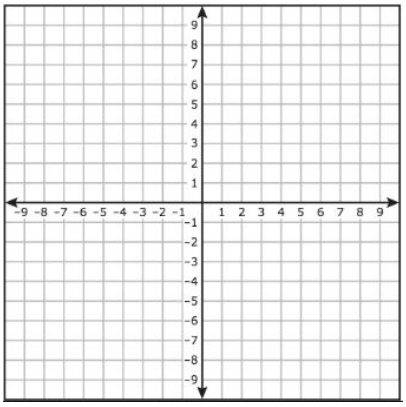


b) $f(x) = |x| + 3$



13.) (8 pts total, 4 pts each) For each of the following, graph the inequality.

a) $y > 3x - 1$



b) $4x - 2y \leq 12$