S-A2 Algebra 2 Session 10 7/11

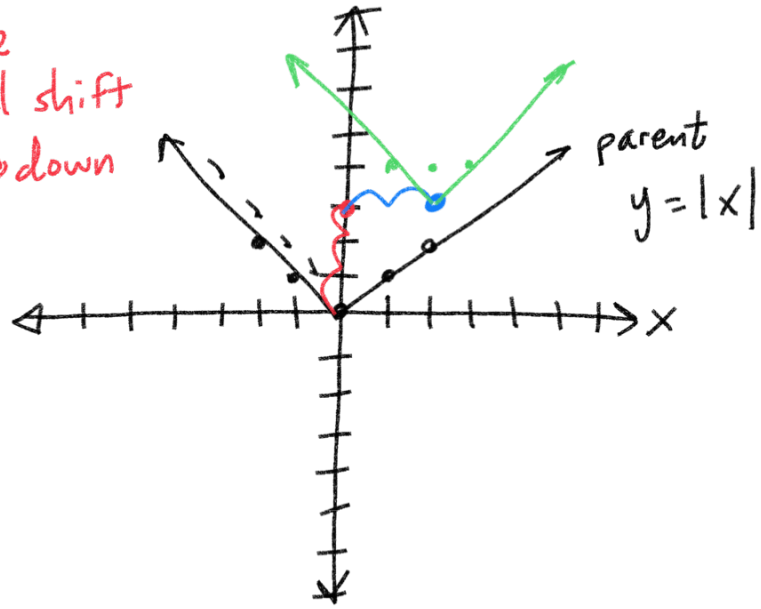
$y = |x - 2| + 3$

outside vertical shift
⊕ up ⊖ down

inside horizontal shift
opposite
⊖ right ⊕ Left

up 3

2 right



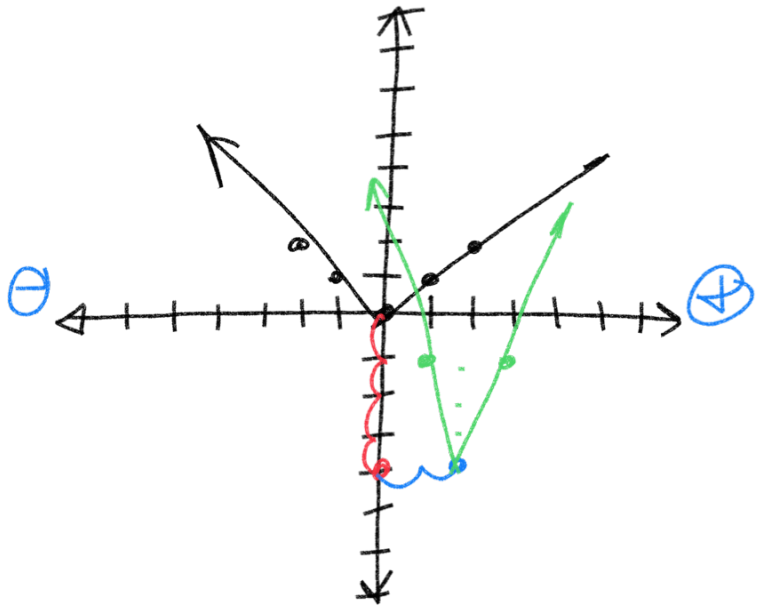
$y = \left|\frac{3}{3}x - \frac{6}{3}\right| - 4$

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

slope
3 up
1 over

2 right
opposite

down 4



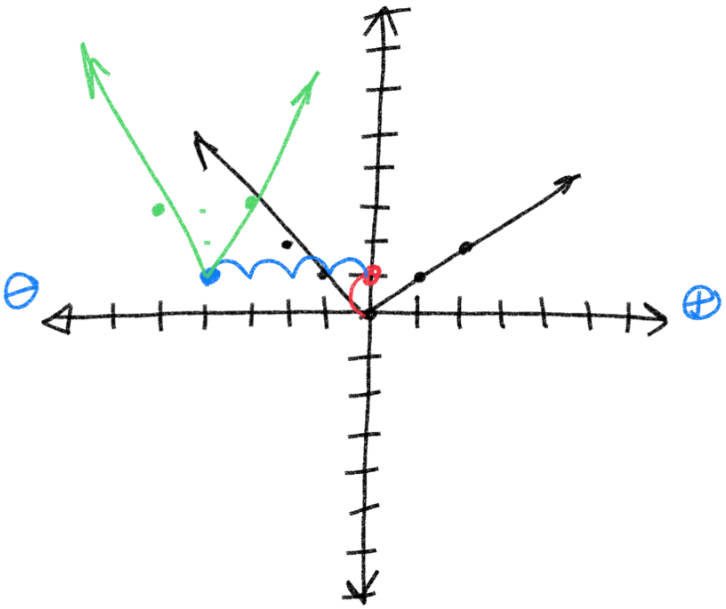
1.) $y = \left|\frac{2}{2}x + \frac{8}{2}\right| + 1$

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

slope up 2 / 1 over

opposite left 4

up 1



2.) $-\left|\frac{4}{4}x - \frac{12}{4}\right| + 6$

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

up 6

flip

4 down / 1 over

right 3

more than 1 $m > 1$ ↓ gets narrow, thinner

less than 1 $m < 1$ ↑ gets wider

$y = +\left|\frac{1}{3}x - 2\right| + 4$

$\frac{1}{3}$ $\frac{1}{3}$

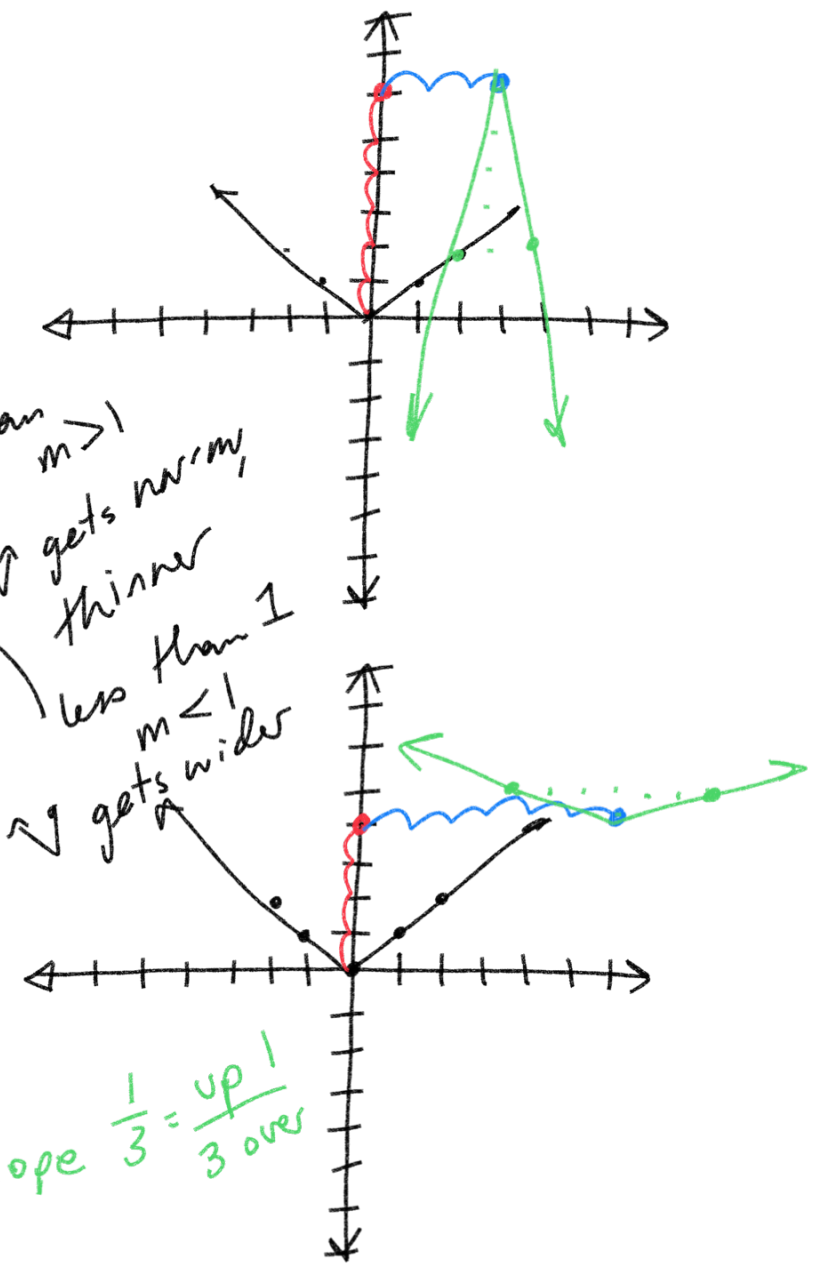
up 4

Keep change flip $y = \left|\frac{1}{3}(x-6)\right| + 4$

right 6

slope $\frac{1}{3}$ = up 1 / 3 over

$-2 \div \frac{1}{3} = -2 * \frac{3}{1} = -6$

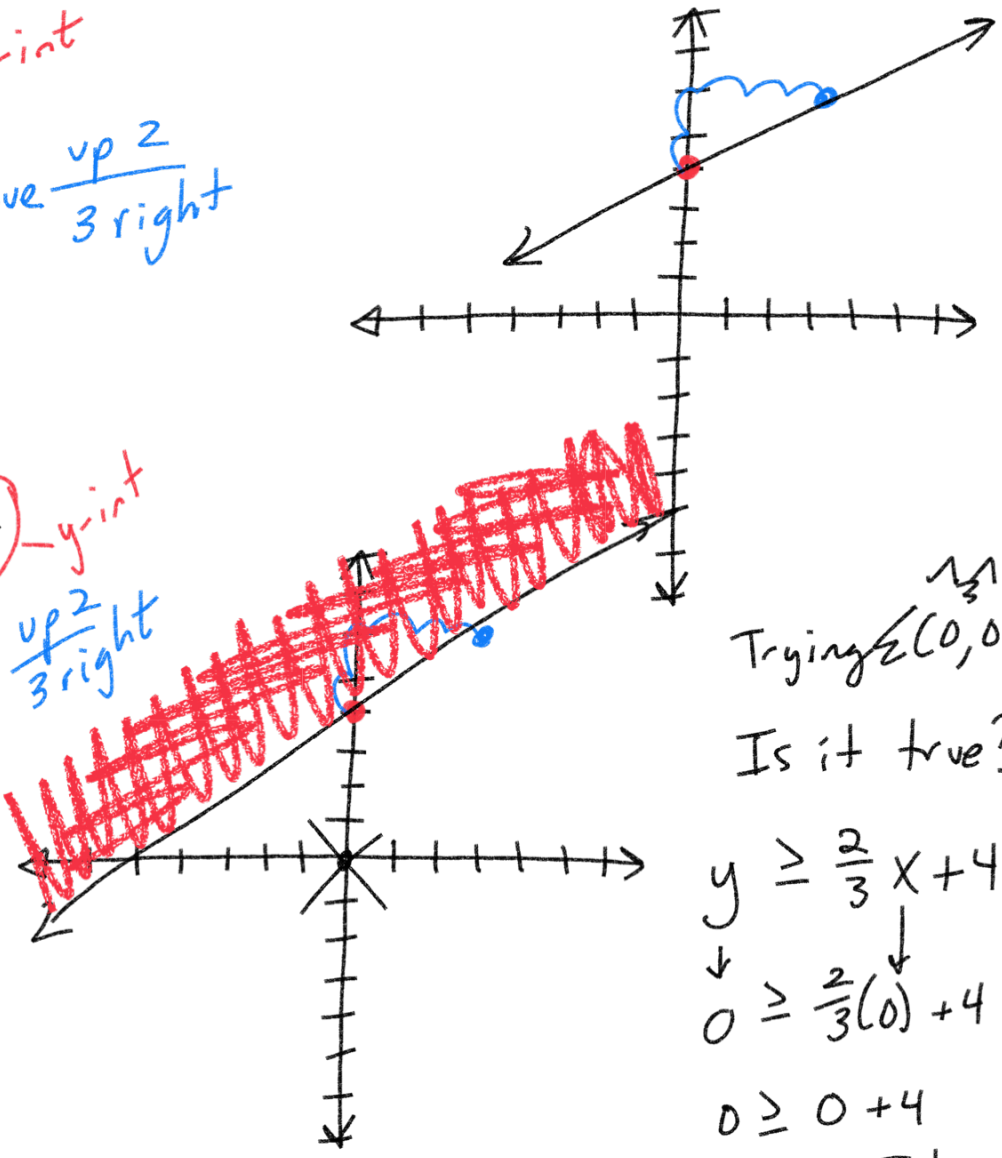


$y = \frac{2}{3}x + 4$ ← y-int

slope

move $\frac{\text{up } 2}{3 \text{ right}}$

$\frac{\text{rise}}{\text{run}}$



up

$y \geq \frac{2}{3}x + 4$ — y-int

slope $\frac{\text{up } 2}{3 \text{ right}}$

$\geq \leq$

$> <$

Trying $\{0,0\}$

Is it true?

$y \geq \frac{2}{3}x + 4$

$0 \geq \frac{2}{3}(0) + 4$

$0 \geq 0 + 4$

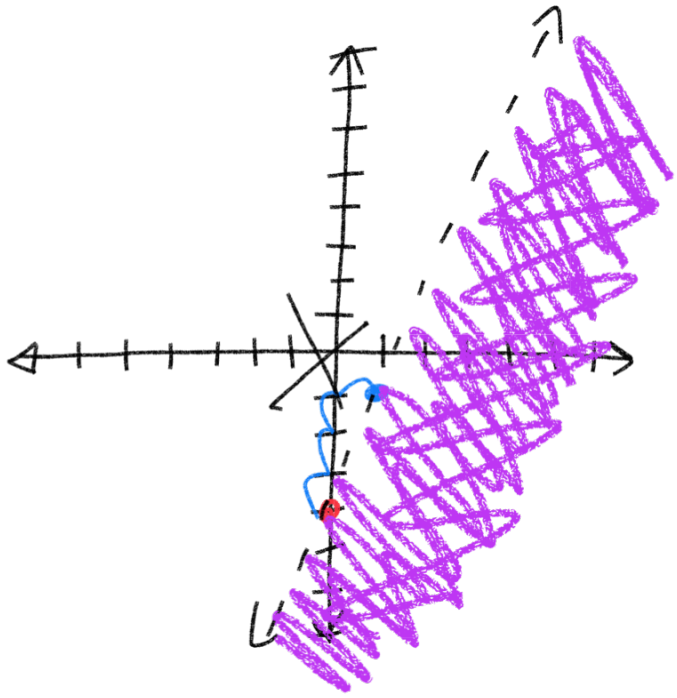
$0 \geq 4$ false

down

$y < 3x - 4$ — y-int

slope

$\frac{\text{up } 3}{1 \text{ right}}$



$\{0,0\}$

$y < 3x - 4$

$0 < 3(0) - 4$

$0 < -4$

false

$2x + 3y \geq 6$

Graph using Intercepts

$\frac{2x}{3} + \frac{3y}{3} = \frac{6}{3}$ $(0, 2)$

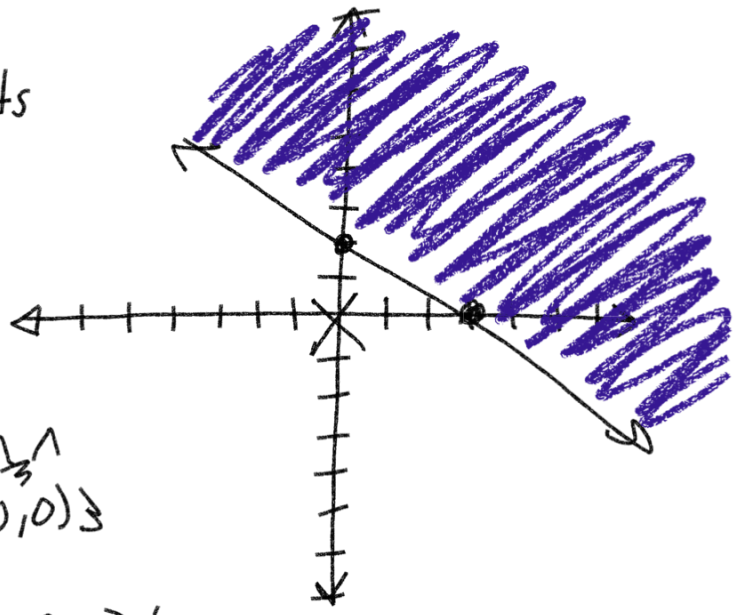
$x = 0$

$y = 2$

$\frac{2x}{2} = \frac{6}{2}$ $(3, 0)$

$y = 0$

$x = 3$



{(0,0)}

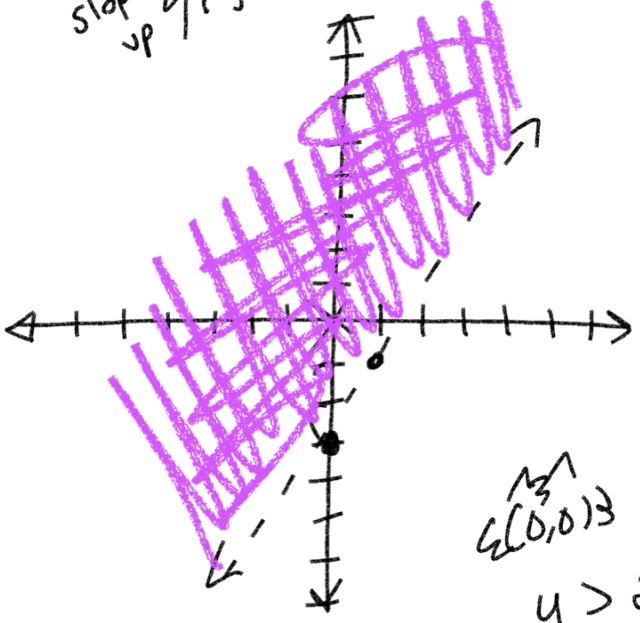
$2x + 3y \geq 6$

$2(0) + 3(0) \geq 6$

$0 \geq 6$ false

1.) $y > 2x - 3$

slope up 2 / right 1



{(0,0)}

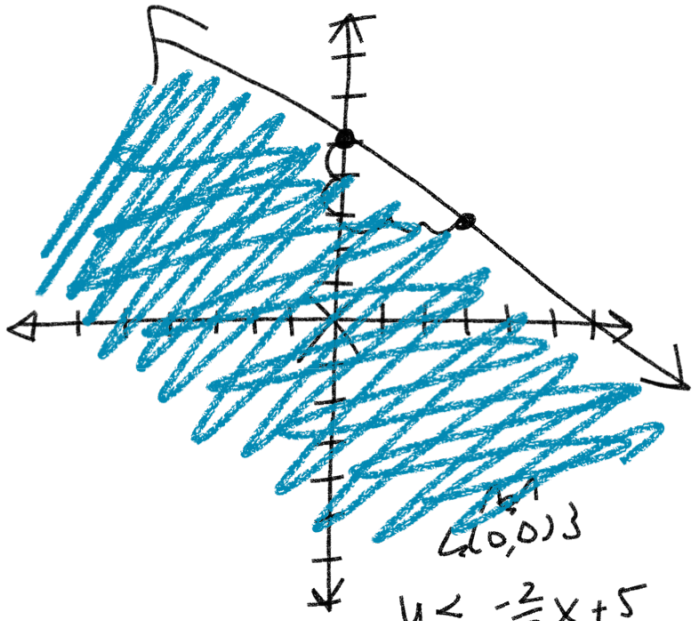
$y > 2x - 3$

$0 > 2(0) - 3$

$0 > -3$ true!

2.) $y \leq -\frac{2}{3}x + 5$

down 2 / right 3



{(0,0)}

$y \leq -\frac{2}{3}x + 5$

$0 \leq -\frac{2}{3}(0) + 5$

$0 \leq 5$ true

$5x - 4y < 20$

$5(0) - 4y < 20$

$\frac{-4y}{-4} < \frac{20}{-4}$ $(0, -5)$

$x = 0$

$y > -5$

$5x - 4(0) = 20$ $(4, 0)$

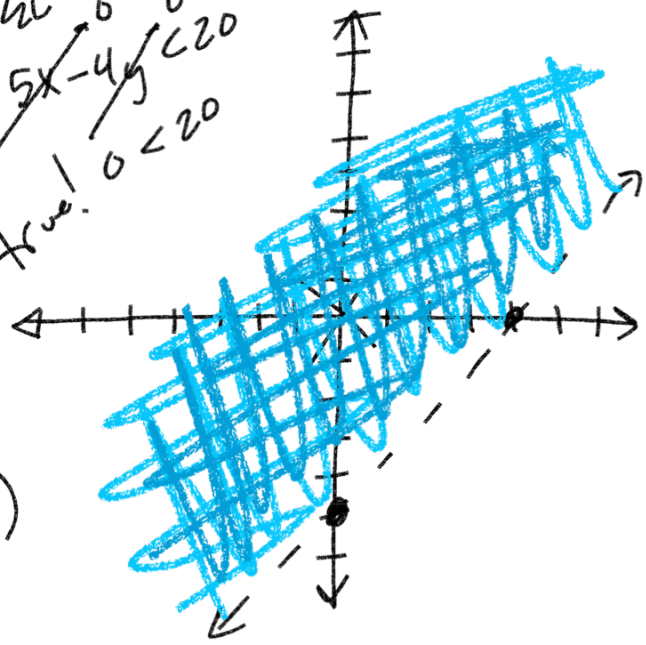
$y = 0$

$\frac{5x}{5} = \frac{20}{5}$ $x = 4$

$(0,0)$

$5(0) - 4(0) < 20$

$0 < 20$ true



Algebra 2 Chapter 2 Pre-Test

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

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

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

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

$\frac{g(x)}{f(x)} = \frac{x^2+6}{3x-5}$ Denominator $\neq 0$

$3x - 5 \neq 0$

$+5 \quad +5$

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

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

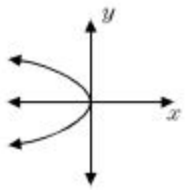
$\frac{g(x)}{f(x)} = \frac{g(3)}{f(2)} = \frac{(3)^2+6}{3(2)-5} = \frac{9+6}{6-5} = \frac{15}{1} \neq 15$

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

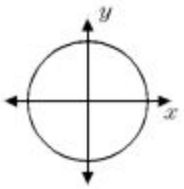
For what value(s) of x would $f(x) \cdot g(x)$ not be a function, if any.

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

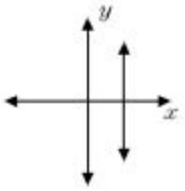
a)



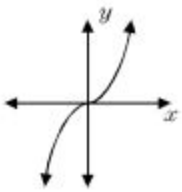
b)



c)



d)



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

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

b) (0, -5), m = ½

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

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

$-4x \quad -4x$

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

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

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

y-int $= -2$

b) $7x - 2y = 10$

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

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

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

$\frac{y_2 - y_1}{x_2 - x_1}$

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