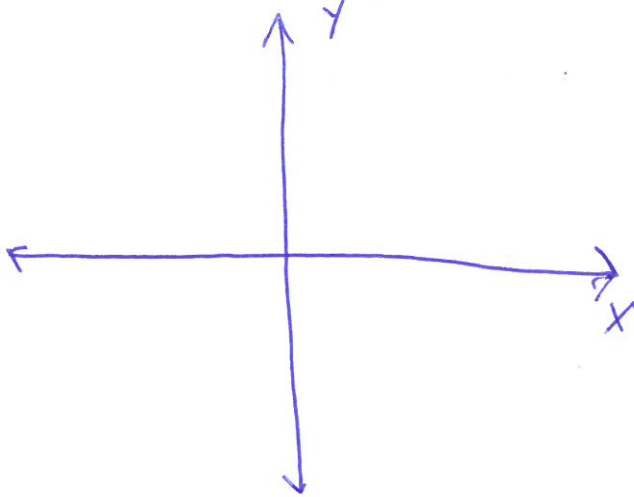


Name: AK Period: \_\_\_\_\_ Date: \_\_\_\_\_

### 1.15 Equations of Lines Review

**Directions: Answer the questions to the best of your ability. Ask for help when needed and be prepared to put your work on the board. Anything written next to "Notes" should be written in your notebook.**

- 1) a. Draw and label an x and y axis in the space below.      b. List three points on the x axis below



(Any number, 0)

- c. What do they have in common?

$$y = 0$$

- d. Write the equation of the x axis.

$$y = 0$$

- e. Repeat steps b, c and d for the y axis.

$$x = 0$$

2. Find the slope of the line through the given points.

- a. (5, 2) and (9, -3)

$$\frac{2 - (-3)}{5 - 9} = -\frac{5}{4}$$

- b. (3, 1) and (-2, 1)

$$\frac{0}{5} = 0$$

- c. (-3, -2) and (-3, 5)

$$\frac{-7}{0} = \text{undefined}$$

**Notes: HOY VUX**, stands for **H**orizontal lines have slope **0** and have **Y** = equations, **V**ertical lines have **U**ndefined slopes and **X** = equations.

Slope-intercept form:  $y = mx + b$ ,  $m$  is the slope and  $b$  is the y intercept.

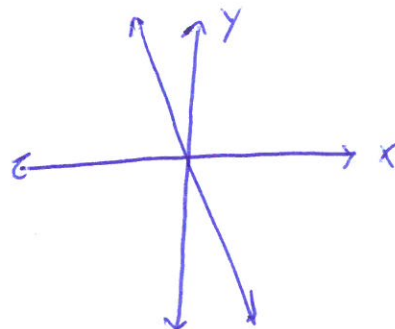
Point-slope form:  $y - y_1 = m(x - x_1)$ ,  $m$  is the slope and  $(x_1, y_1)$  is any point on your line.

3. Write the equation of a line with slope of  $-3/2$  and through the point  $(-4, 6)$  in slope-intercept form and also sketch a graph.

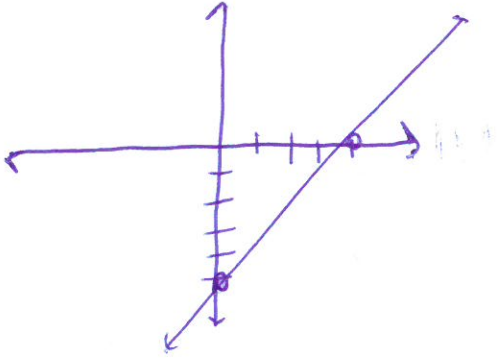
$$y - 6 = -\frac{3}{2}(x + 4)$$

$$y - 6 = -\frac{3}{2}x - 6$$

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



4. Sketch graph of a line with x intercept (4, 0) and y intercept (0, -5) and also write the equation of the line on point-slope form.



$$y - 0 = \frac{5}{4} (x - 4)$$

or

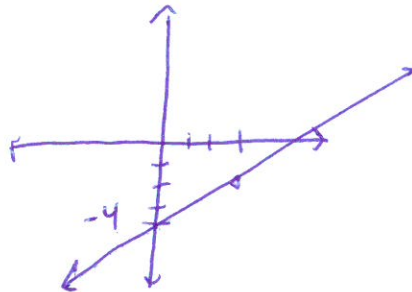
$$y + 5 = \frac{5}{4} (x - 0)$$

5. Find the slope, y intercept, x intercept and provide a graph of the line with an equation  $2x - 3y = 12$ .

$$2x - 3y = 12$$

$$\frac{-3y}{-3} = \frac{-2x + 12}{-3}$$

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



X int

$$2x - 3(0) = 12$$

$$x = 6 \quad (6, 0)$$

Y int

$$2(0) - 3y = 12$$

$$\frac{-3y}{-3} = \frac{12}{-3}$$

$$y = -4 \quad (0, -4)$$

Notes: Parallel Lines have the same slope. Perpendicular lines have slopes that are opposite reciprocal. For example and line with a slope 2 and  $-\frac{1}{2}$  are perpendicular.

6. Write the equation of a line perpendicular to  $y - 3 = -\frac{2}{3}(x + 5)$  through the point (8, -2) in slope-intercept form.

$$y + 2 = \frac{3}{2}(x - 8)$$

$$y + 2 = \frac{3}{2}x - 12$$

$$y = \frac{3}{2}x - 14$$

7. Write the equation of a line through (-1, 7) and (-3, 11) in point-slope form.

$$y - 7 = \frac{4}{-2}(x + 1)$$

$$y - 7 = -2x - 2$$

$$y - 7 = -2(x + 1) \quad \text{point slope}$$

$$y - 11 = -2(x + 3)$$

$$y = -2x + 5 \quad \text{slope intercept}$$