

## Math011 - Practice Test on Chapters 3 & 4

1. Plot the following points and for each label what quadrant it's in.

a) (2, -4)

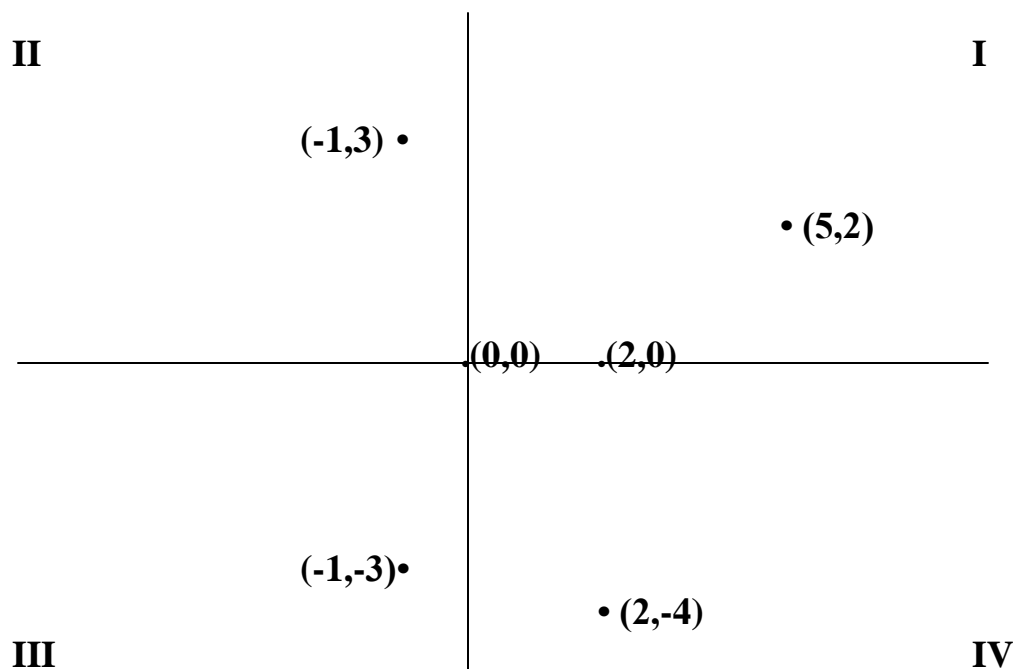
b) (-1, -3)

c) (5, 2)

d) (-1, 3)

e) (0, 0)

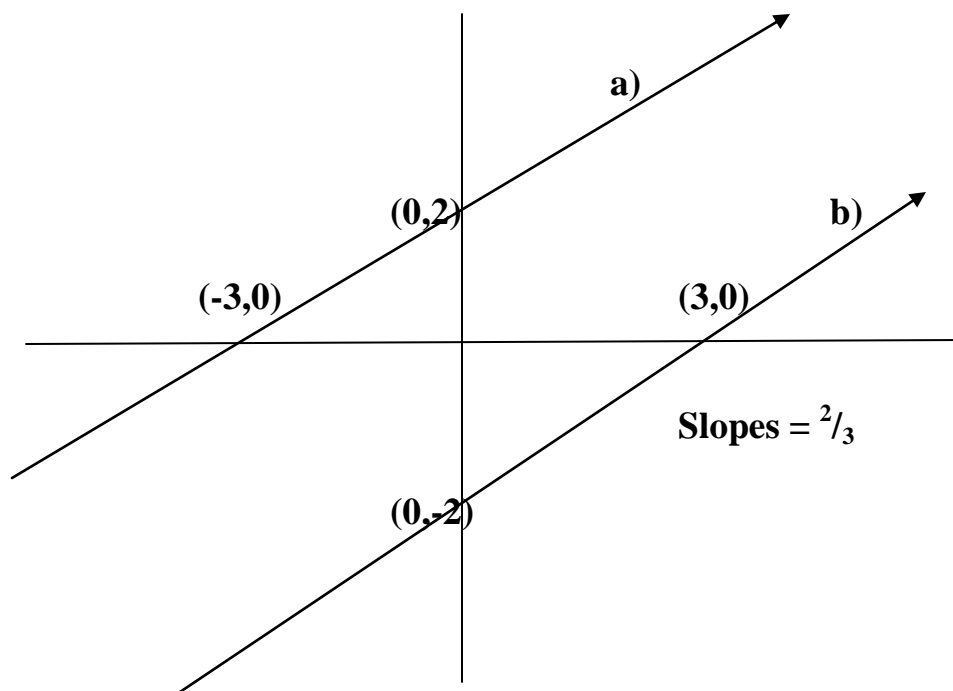
f) (2, 0)



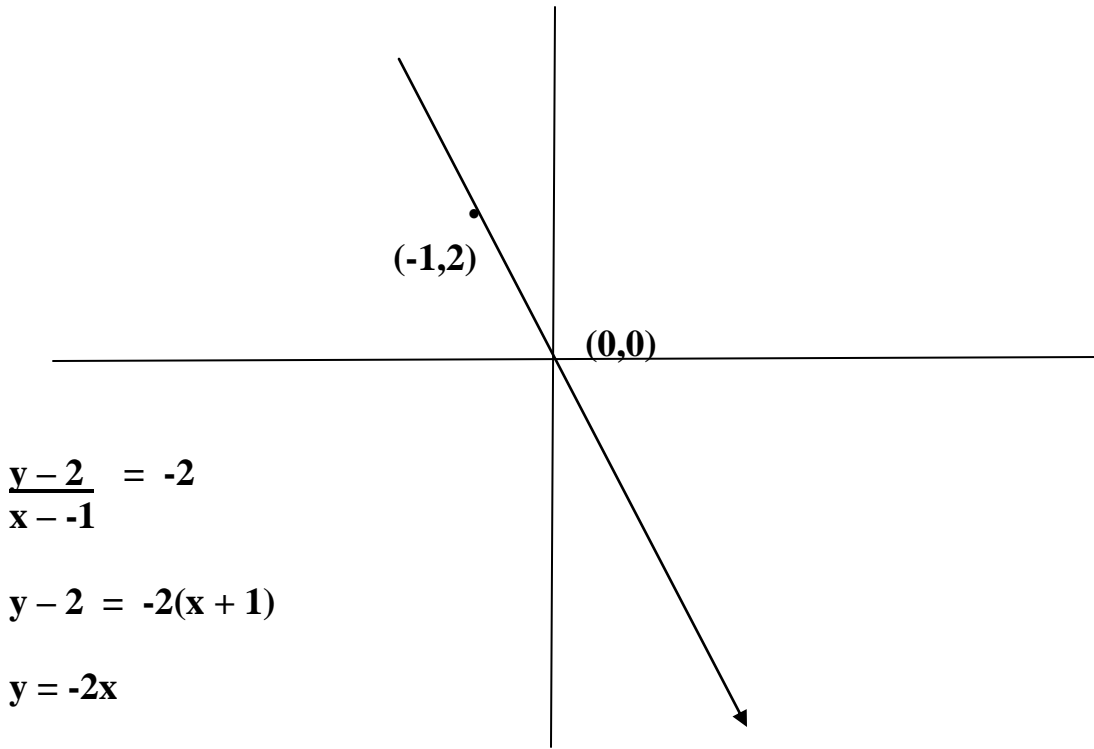
2. Graph each of the following, labeling the X&Y-intercepts. Notice that both have the same slope - **what is it?**

a)  $-2x + 3y = 6$

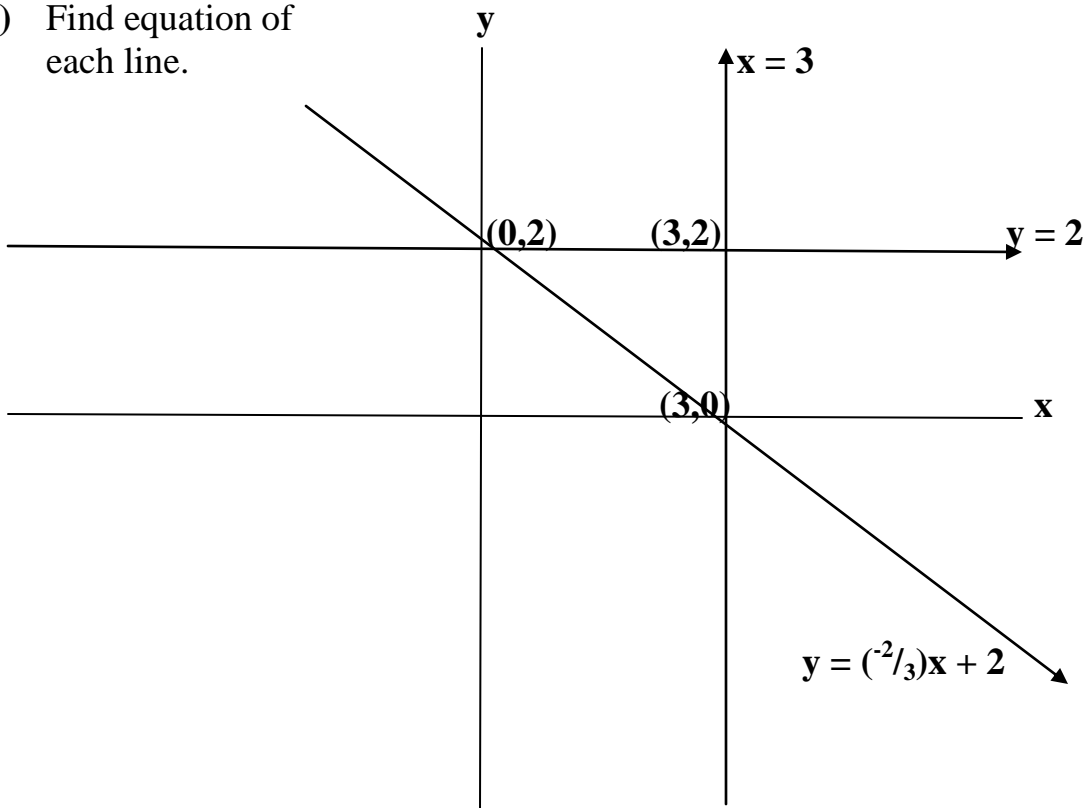
b)  $y = (\frac{2}{3})x - 2$



**3.a.** Find the equation of the line with slope  $-2$  which passes through the point  $(-1, 2)$ . Graph it and label the X&Y-intercepts. (Or, perhaps, there will be pictures of lines and you'll be asked to find the equations?)



**3.b)** Find equation of each line.

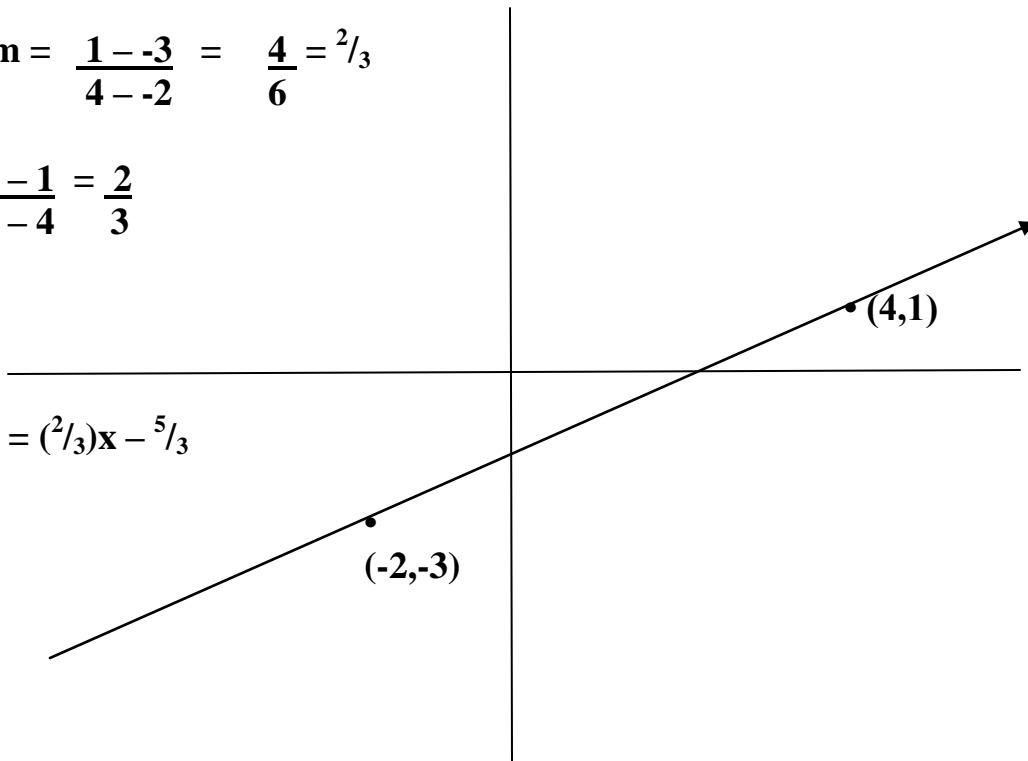


4. Find the equation of the line through the points  $(-2,-3)$  and  $(4,1)$ .

$$m = \frac{1 - (-3)}{4 - (-2)} = \frac{4}{6} = \frac{2}{3}$$

$$\frac{y - 1}{x - 4} = \frac{2}{3}$$

$$y = \left(\frac{2}{3}\right)x - \frac{5}{3}$$



5. Solve the following system of two equations in two variables. Graph each equation and label the point of intersection:

$$y = 2x + 1$$

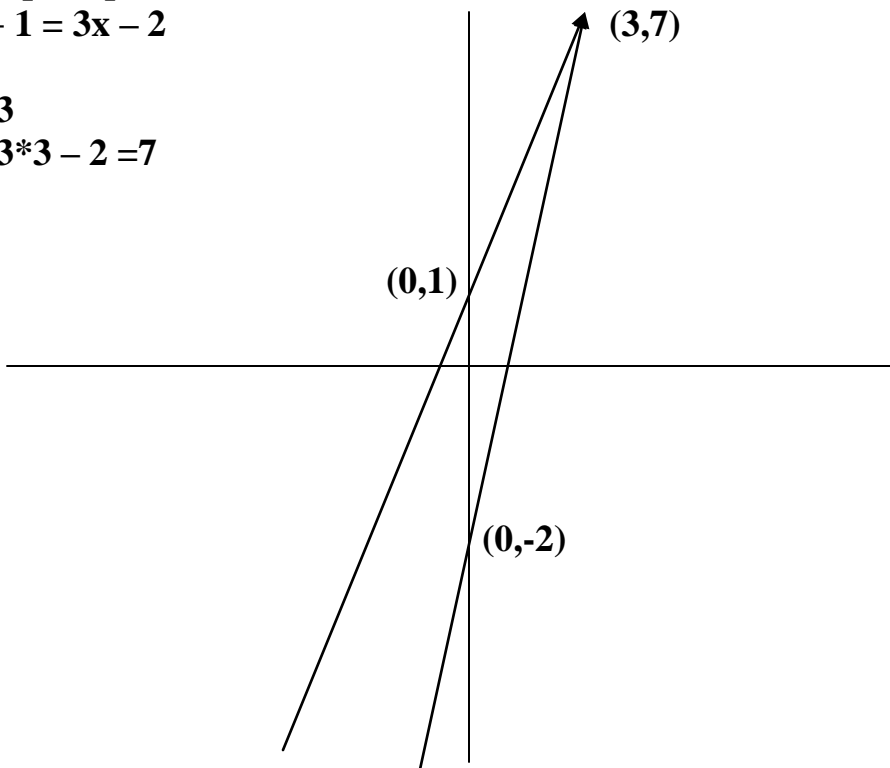
$$y = 3x - 2$$

Set eqns equal:

$$2x + 1 = 3x - 2$$

$$x = 3$$

$$y = 3 \cdot 3 - 2 = 7$$



6. Solve the following system of two equations in two variables. Graph each equation and label the point of intersection:

$$2x + 3y = 6$$

$$x - y = 1$$

$$2x + 3y = 6$$

$$2x - 2y = 2 \quad (2^{\text{nd}} \text{ eqn} * 2 \ \& \ \text{sub})$$

$$\underline{5y = 4}$$

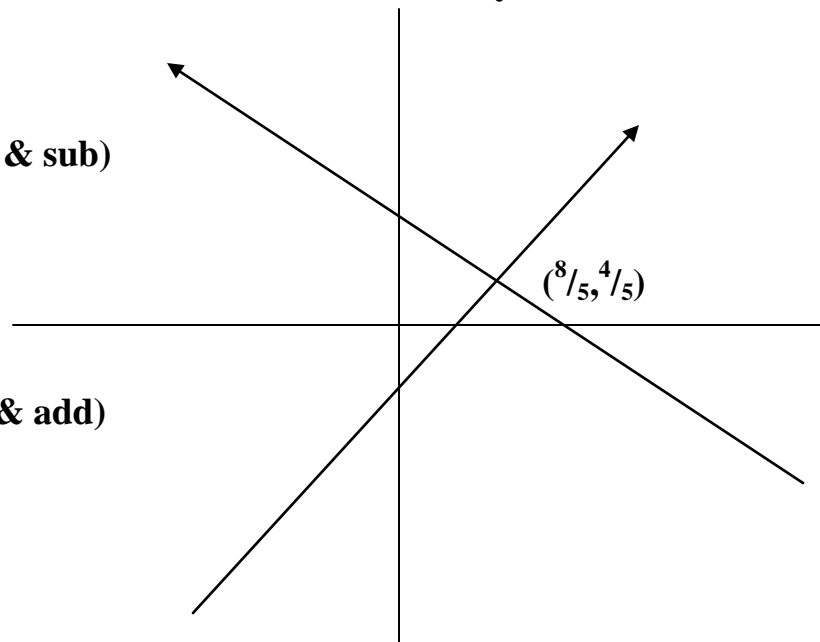
$$y = \frac{4}{5}$$

$$2x + 3y = 6$$

$$3x - 3y = 3 \quad (2^{\text{nd}} \text{ eqn} * 3 \ \& \ \text{add})$$

$$\underline{5x = 8}$$

$$x = \frac{8}{5}$$



7. You fill up your tank, note the odometer reads 37,248 miles, and leave Winchester at 8:30AM. You travel south on I-81. At 2:00PM you arrive in Roanoke, fill your tank with 13 gallons of gasoline, and note the odometer now reads 37,568.

7.a. What was your average speed in miles per hour?

$$\text{Distance} = \frac{37,568 - 37,248 \text{ miles}}{5.5 \text{ hrs}} \quad \text{Speed} = \frac{320}{5.5} = 58.2 \text{ mph}$$

7.b. What was your average mileage in miles per gallon?

$$\text{Distance} = \frac{320 \text{ miles}}{13 \text{ gal}} \quad \text{Mileage} = \frac{320}{13} = 24.6 \text{ mpg}$$

