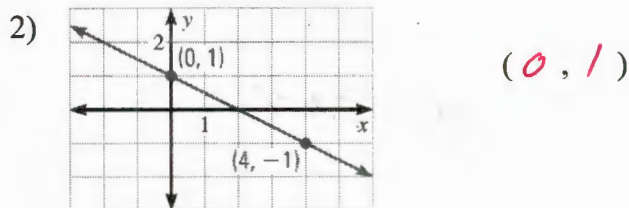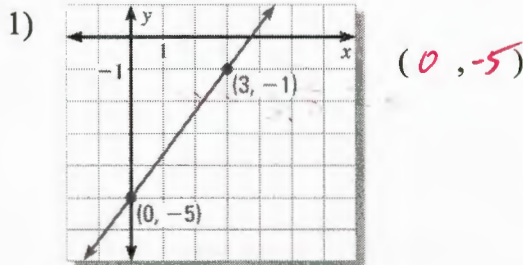Name: **Answers**   Period: _____

4.6 Writing Equations in Slope Intercept Form

In the following, identify the *y*-intercept.

1)

$(0, -5)$

2)

$(0, 1)$

3) According to what you notice in #1 and 2, what is always going to be the first number in the coordinates of the *y*-intercept?

0

4) Give **any** two examples of coordinates that may also be *y*-intercepts of lines.

Examples: $(0, -4)$ and $(0, 7)$

5) What is the formula for slope? $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

6) What is the equation of a line in slope-intercept form? $y = mx + b$

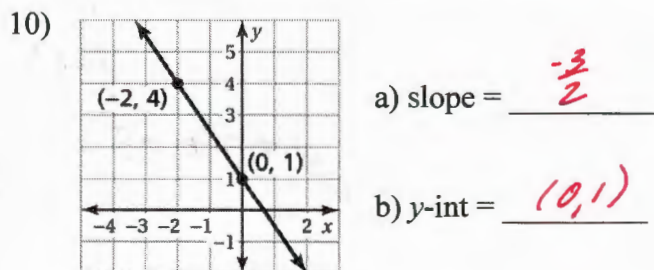a) What does the **m** stand for? Slope   What does the **b** stand for? y-intercept

7) Write an equation of the line with a slope of -2 and a *y*-intercept of 5. $y = -2x + 5$

8) Write an equation of the line with a slope of 8 and a *y*-intercept of -7. $y = 8x - 7$
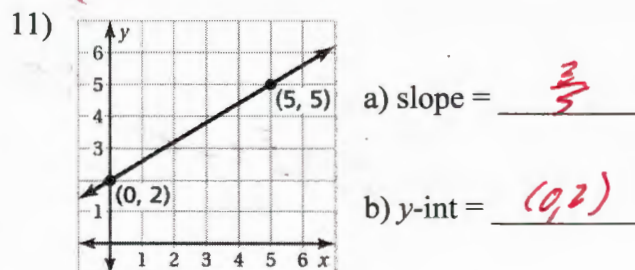
9) Write an equation of the line with a slope of $-\dfrac{8}{3}$ and a *y*-intercept of 6. $y = \dfrac{-8}{3}x + 6$

For each of the following graphs of lines:
   a) Find the slope
   b) Find the *y*-intercept in coordinate form [example: (0, -3)]
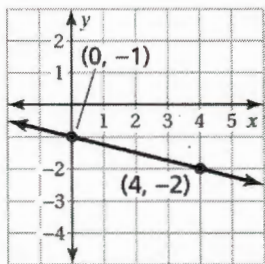   c) Find the equation of the line in slope-intercept form.

10)

a) slope = $\dfrac{-3}{2}$

b) *y*-int = $(0, 1)$

c) $y = \dfrac{-3}{2}x + 1$

11)

a) slope = $\dfrac{3}{5}$

b) *y*-int = $(0, 2)$

c) $y = \dfrac{3}{5}x + 2$
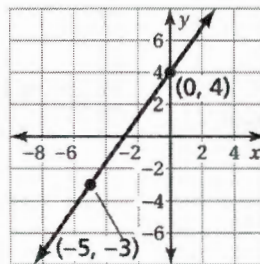
12)

(0, −1)

(4, −2)

a) slope = $\dfrac{-1}{4}$

b) y-int = $(0,-1)$

c) $y = -\dfrac{1}{4}x - 1$

13)

(0, 4)

(−5, −3)

a) slope = $\dfrac{7}{5}$

b) y-int = $(0,4)$

c) $y = \dfrac{7}{5}x + 4$

For each of the following, you will be finding the equation of the line that passes through the given points.
a) Find the slope (Clue: there is a formula for this, and you've written it earlier on this paper)
b) Identify the *y*-intercept between the two given coordinates
c) Find the equation of the line in slope-intercept form.

14) (0, 0), (4, −2)

$m = \dfrac{-2-0}{4-0}$

$= -\dfrac{2}{4} = -\dfrac{1}{2}$

$m = \dfrac{y_2 - y_1}{x_2 - x_1}$

a) slope = $\dfrac{-1}{2}$

b) y-int = $(0,0)$

c) $y = -\dfrac{1}{2}x$

15) (−2, 6), (0, 3)

$m = \dfrac{3-6}{0--2}$

$= -\dfrac{3}{2}$

a) slope = $\dfrac{-3}{2}$

b) y-int = $(0,3)$

c) $y = -\dfrac{3}{2}x + 3$

16) (−4, −1), (0, 5)

$m = \dfrac{y_2 - y_1}{x_2 - x_1}$

$m = \dfrac{5--1}{0--4} = \dfrac{6}{4} = \dfrac{3}{2}$

a) slope = $\dfrac{3}{2}$

b) y-int = $(0,5)$

c) $y = \dfrac{3}{2}x + 5$

17) (0, −3), (1, −5)

$m = \dfrac{-5--3}{1-0}$

$= \dfrac{-2}{1}$

a) slope = -2

b) y-int = $(0,-3)$

c) $y = -2x - 3$

Attempt to do the following problems to the best of your ability.

18) A plant is 3 inches tall when you purchase it and grows 2 inches per month. Write an equation that represents the height y (in inches) of a plant that you purchased x months ago.

$$y = 2x + 3$$

19) You go to the movies and pay $10 for a ticket to see the movie. Each bag of skittles cost $4. Write an equation, in slope-intercept form, that shows the total cost y (in dollars) of the ticket and x number of bags of skittles.

$$y = 4x + 10$$

20) You are planning on participating in a walk-a-thon to raise money for charity. Your Dad offers to donate $20 for you to participate AND will pay an additional $5 for every mile you walk.

a) Write an equation that describes the situation.

$$y = 5x + 20$$

b) Interpret the slope. (What does the slope mean in this problem?)

The slope is how much your dad will pay for every mile you walk.

c) Interpret the y-intercept. (What does the y-intercept mean in this problem?)

The y-intercept is how much your dad initially donates.