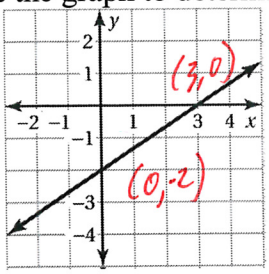
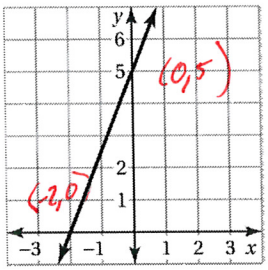
Name: Answers Period: _____

4.5 & 4.6 Standard Form & Writing Equations in Slope Intercept Form

Use the graph to determine the x- and y-intercepts.

1) 

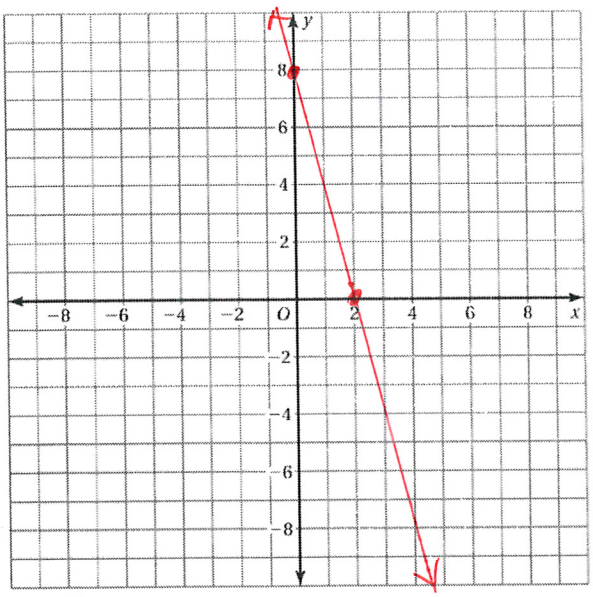
2) 

Graph the linear equation using intercepts.

3) $4x + y = 8$

(4,0)
$4x+0=8$
$4x=8$
$x=2$ (2,0)

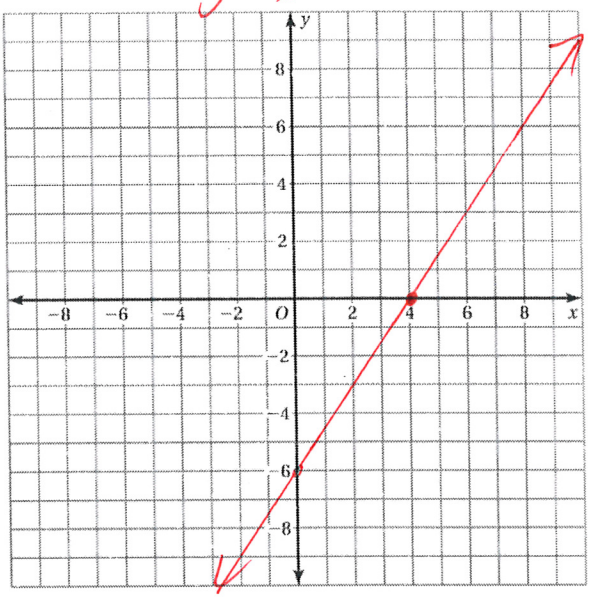
(0,y)
$4(0)+y=8$
$y=8$ (0,8)



4) $3x - 2y = 12$

(x,0)
$3x-2(0)=12$
$3x=12$
$x=4$ (4,0)

(0,y)
$3(0)-2y=12$
$-2y=12$
$y=-6$ (0,-6)



9) The total amount of fiber (in grams) in a package containing x apples and y oranges is given by the equation $5x + 10y = 110$.

a) Find and interpret the y-intercept.

(0,y)
$5(0)+10y=110$
$10y=110$
$y=11$

For 0 apples, you can get 11 oranges.

b) Find and interpret the x-intercept.

(x, 0)
$5x + 10(0) = 110$
$5x = 110$
$x = 22$

(22, 0)

For 0 oranges, you can get 22 apples.

c) How many grams of fiber does an orange contain?

10 grams

d) How many grams of fiber does an apple contain?

5 grams

Fiber → $5x + 10y = 110$ ← Fiber

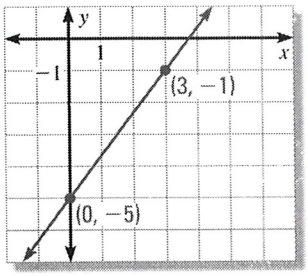
$5x$: # of apples; $10y$: # of oranges; 110: Total Fiber

e) Is it possible for the package to contain 15 apples? Explain.

Yes. Because the maximum number of apples is 22.

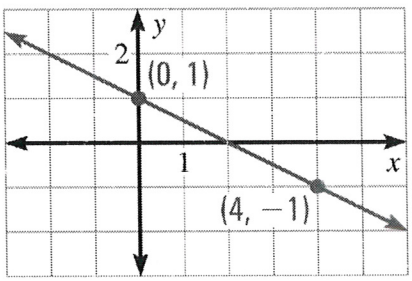
In the following, identify the *y*-intercept.

10)



(0, -5)

11)



(0, 1)

12) According to what you notice in ~~#3~~ 10 and ~~4~~ 11, what is always going to be the first number in the coordinates of the *y*-intercept?

0

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

Examples: (0, 5) and (0, -2)

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

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

a) What does the ***m*** stand for? slope

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

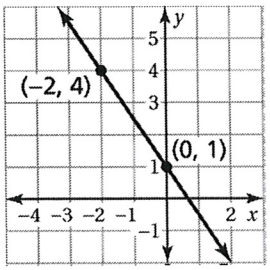
16) Write an equation of the line with a slope of -2 and a *y*-intercept of 5. $y = -2x + 5$

17) Write an equation of the line with a slope of 8 and a y-intercept of -7. $y = 8x - 7$

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

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.

19)

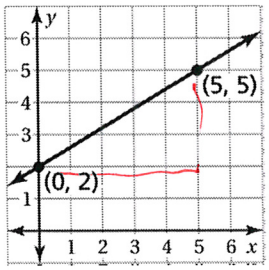


a) slope = $\frac{-3}{2}$

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

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

20)

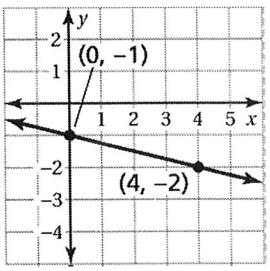


a) slope = $\frac{3}{5}$

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

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

21)

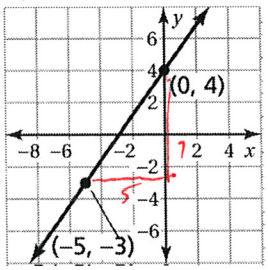


a) slope = $-\frac{1}{4}$

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

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

22)



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

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

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

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.

23) (0, 0), (4, −2)

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

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

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

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

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

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

24) (−2, 6), (0, 3)

$m = \frac{3-6}{0-(-2)}$

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

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

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

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

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

25) $(-4, -1), (0, 5)$

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

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

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

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

26) $(0, -3), (1, -5)$

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

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

a) slope = -2

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

c) $y = -2x - 3$

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

27) 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.

$y = 2x + 3$

28) 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.

$y = 4x + 10$

29) 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 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