

Name: _____

Period: _____

Chapter 4 Review

1) Write the following formulas:

a) Slope formula: $m = \frac{y_2 - y_1}{x_2 - x_1}$

c) Standard form: $Ax + By = C$

b) Slope-intercept form: $y = mx + b$

d) Point-slope form: $y - y_1 = m(x - x_1)$

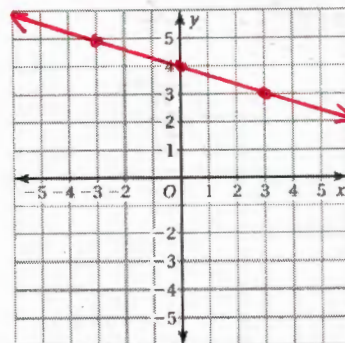
2) Graph the linear equation on the coordinate plane on the right. Make sure you use an input/output table with at least 3 ordered pairs for each.

$$\frac{1}{3}x + y = 4$$

$$-\frac{1}{3}x \quad -\frac{1}{3}x$$

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

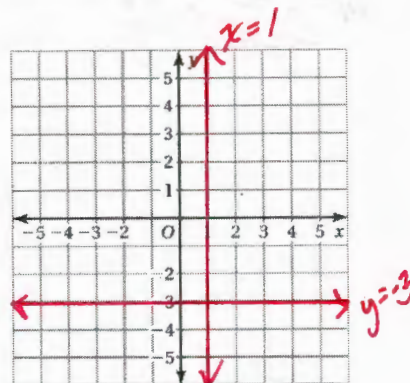
x		y
-3	$-\frac{1}{3}(-3) + 4$	5
0	$-\frac{1}{3}(0) + 4$	4
3	$-\frac{1}{3}(3) + 4$	3



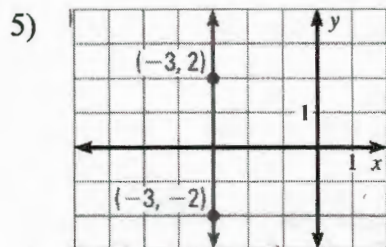
3) Graph both of the equations on the coordinate plane on the right. You may make an input/output table if you wish.

a) $y = -3$

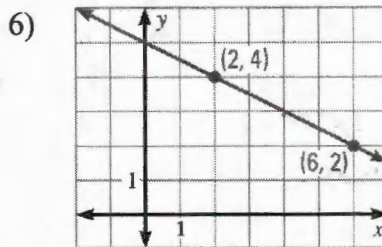
b) $x = 1$

4) The slope of any line can be written as a ratio that represents its rise over its run.

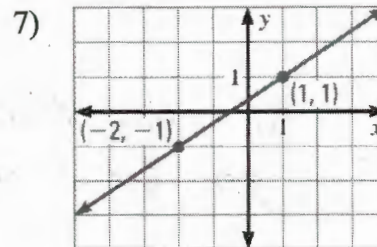
Tell whether the slope of the line is positive, negative, zero, or undefined. Then find the slope if it exists.

Kind of slope: Undefined

$m = \text{Undefined}$

Kind of slope: Negative

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

Kind of slope: Positive

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

8) The slopes of parallel lines are the same.

9) What is the slope of a line that is parallel to the line:

a) $y = 3x - 4$

$m = 3$

b) $3x - 5y = 15$

$$\begin{aligned} -3x & \quad -3x \\ -5y & = -3x + 15 \\ -5 & \quad -5 \\ y & = \frac{3}{5}x - 3 \end{aligned}$$

$m = \frac{3}{5}$

10) Find the slope of the line that passes through the points. Write your answer in simplest form.

a) $(-2, 0)$ and $(4, 9)$ $m = \frac{3}{2}$

$$m = \frac{9-0}{4-(-2)} = \frac{9}{6} = \frac{3}{2}$$

b) $(2, 11)$ and $(-1, 10)$ $m = \frac{1}{3}$

$$m = \frac{10-11}{-1-2} = \frac{-1}{-3} = \frac{1}{3}$$

c) $(-5, 2)$ and $(-5, 7)$ $m = \text{Undefined}$

$$m = \frac{7-2}{-5-(-5)} = \frac{5}{0}$$

d) $(4, 6)$ and $(-2, 6)$ $m = \text{Zero}$

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

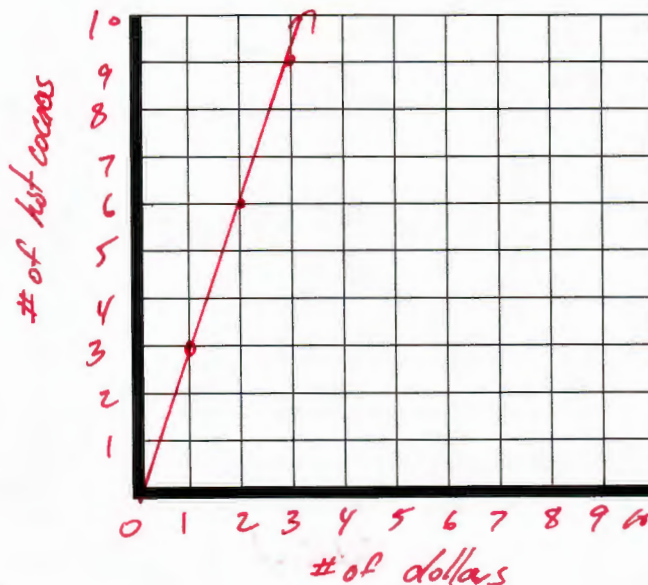
11) Jenny wanted to buy a bunch of hot cocoas for her friends. The number y hot cocoas you get from x dollars is represented by the equation $y = 3x$.

a) Make sure to:

- Label your axis.
- Use at least 4 ordered pairs.

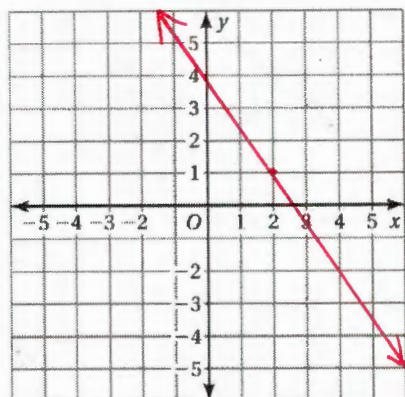
b) Interpret what the slope means in this problem

For every dollar you spend,
you get 3 hot cocoas.

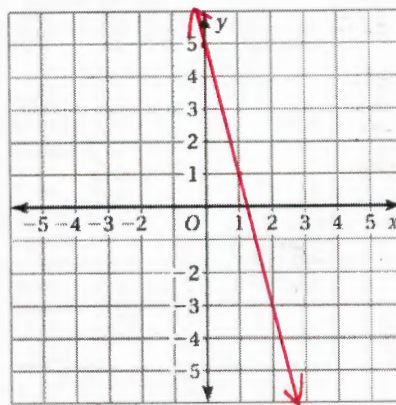


Graph each equation using the slope and the y-intercept only.

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

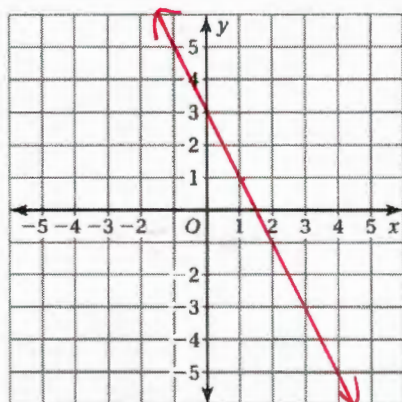


17) $y = -4x + 5$

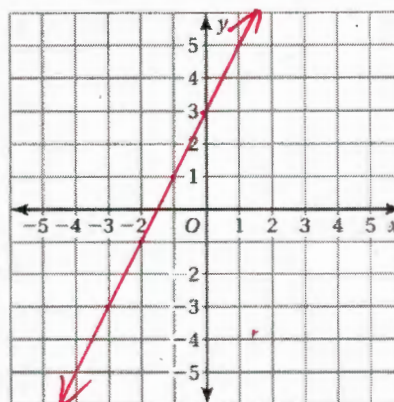


Rewrite each equation in slope-intercept form. Then graph.

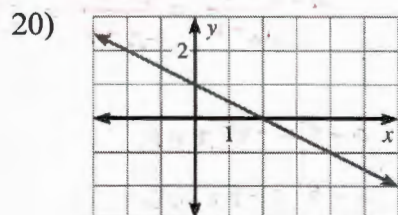
18) $2x + y = 3$
 $-2x \quad -2x$
 $y = -2x + 3$



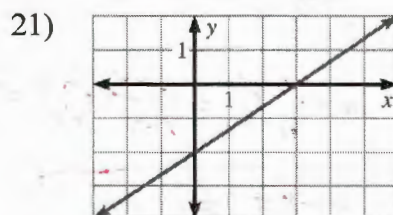
19) $6x - 3y = -9$
 $-6x \quad -6x$
 $\frac{-3y}{-3} = \frac{-6x - 9}{-3}$
 $y = 2x + 3$



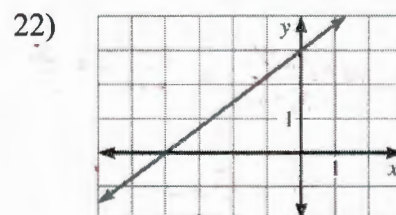
Identify the x-intercept and the y-intercept of the graph.



x-intercept : $(2, 0)$
 y-intercept : $(0, -1)$



x-intercept : $(3, 0)$
 y-intercept : $(0, -2)$



x-intercept : $(-4, 0)$
 y-intercept : $(0, 3)$

Find the x-intercept and the y-intercept of each equation, and then graph it.

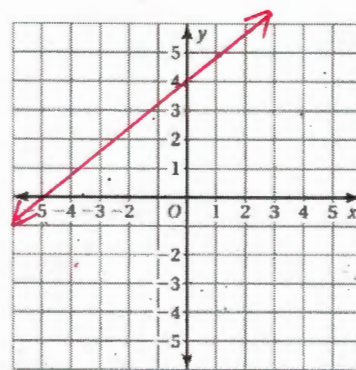
23) $-4x + 5y = 20$

$$\begin{aligned} (x, 0) \\ -4x + 5(0) &= 20 \\ -4x &= 20 \\ \frac{-4x}{-4} &= \frac{20}{-4} \\ x &= -5 \end{aligned}$$

$$\begin{aligned} (0, y) \\ -4(0) + 5y &= 20 \\ 5y &= 20 \\ \frac{5y}{5} &= \frac{20}{5} \\ y &= 4 \end{aligned}$$

x-intercept: $(-5, 0)$

y-intercept: $(0, 4)$



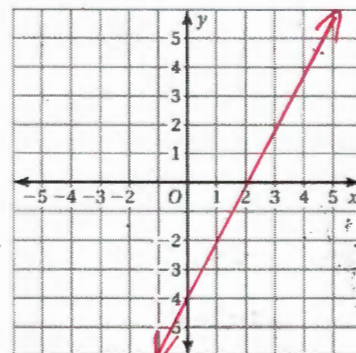
24) $6x - 3y = 12$

$$\begin{aligned} (x, 0) \\ 6x - 3(0) &= 12 \\ 6x &= 12 \\ \frac{6x}{6} &= \frac{12}{6} \\ x &= 2 \end{aligned}$$

$$\begin{aligned} (0, y) \\ 6(0) - 3y &= 12 \\ -3y &= 12 \\ \frac{-3y}{-3} &= \frac{12}{-3} \\ y &= -4 \end{aligned}$$

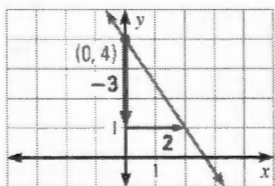
x-intercept: $(2, 0)$

y-intercept: $(0, -4)$



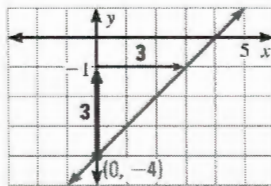
Write an equation of the line shown in slope-intercept form.

25)



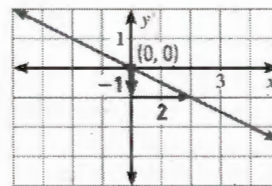
$$y = -\frac{3}{2}x + 4$$

26)



$$y = x - 4$$

27)



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

28) Write the equation of a line that passes through the points $(3, -2)$ and $(0, 6)$ in slope-intercept form.

$$\begin{aligned} y &= mx + b \\ m &= \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - (-2)}{0 - 3} = \frac{8}{-3} = -\frac{8}{3} \\ y &= -\frac{8}{3}x + 6 \end{aligned}$$

29) Write the equation of a line that passes through the points $(-1, 8)$ and $(9, -6)$ in point-slope form.

$$\begin{aligned} y - y_1 &= m(x - x_1) \\ m &= \frac{y_2 - y_1}{x_2 - x_1} = \frac{-6 - 8}{9 - (-1)} = \frac{-14}{10} = -\frac{7}{5} \\ y - 8 &= -\frac{7}{5}(x + 1) \end{aligned}$$

30) Write the equation of a line that passes through the points $(-4, 5)$ and $(-2, -3)$ in slope-intercept form.

$$\begin{aligned} m &= \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 - 5}{-2 - (-4)} = \frac{-8}{2} = -4 \\ y - 5 &= -4(x + 4) \\ y - 5 &= -4x - 16 \\ +5 & \quad +5 \\ y &= -4x - 11 \end{aligned}$$