

$\Delta x - y$  int.  
a)

## Chapter 4.4-4.6 Quiz Review Packet

### Section Topics

Find the Slope of a line (from a graph or from two points)

Identify the slope and y-intercept ( $m$  and  $b$ )

Graph a line in Slope-Intercept Form. ( $y = mx + b$ )

Rewrite lines into Slope-Intercept Form. ( $y = mx + b$ )

Identify lines in Slope-Intercept Form and Standard Form

$$(y = mx + b) \quad (ax + by = c)$$

Identify the x and y-intercepts. ( $ax + by = c$ )

Graph a line in Standard Form ( $ax + by = c$ )

Rewrite lines into Standard Form. ( $ax + by = c$ )

Writing Equations in Slope-Intercept Form. ( $y = mx + b$ )

### Find the Slope of a line

Find the slope between the given points. use  $\frac{y_2 - y_1}{x_2 - x_1} = m$

A) (3, -4) and (-5, -6)

B) (-1, 3) and (-7, -5)

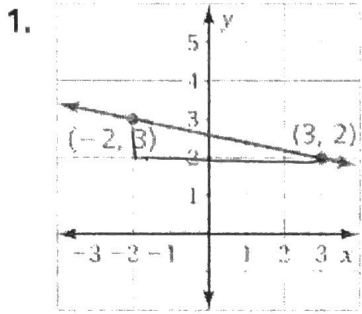
$$\frac{-6 - (-4)}{-5 - 3} = \frac{-2}{-8}$$

$$\frac{-5 - 3}{-7 - (-1)} = \frac{-8}{-6}$$

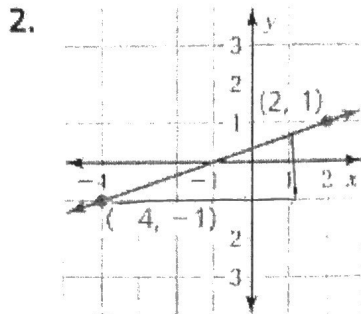
$$m = \frac{1}{4}$$

$$m = \frac{4}{3}$$

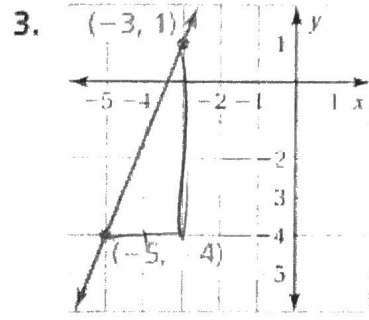
Find the slope of the line.



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



$$m = \frac{2}{5}$$



$$m = -\frac{5}{2}$$

Graphing Linear Equations in Slope-Intercept Form

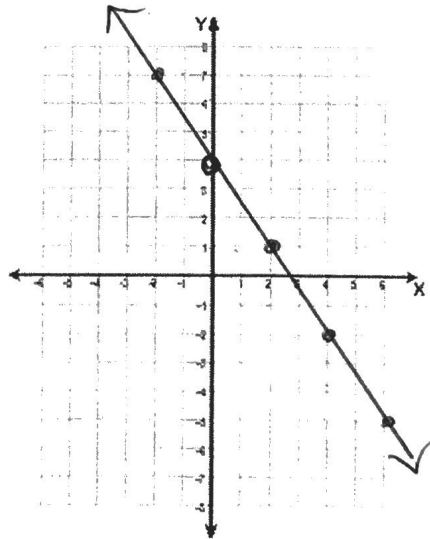
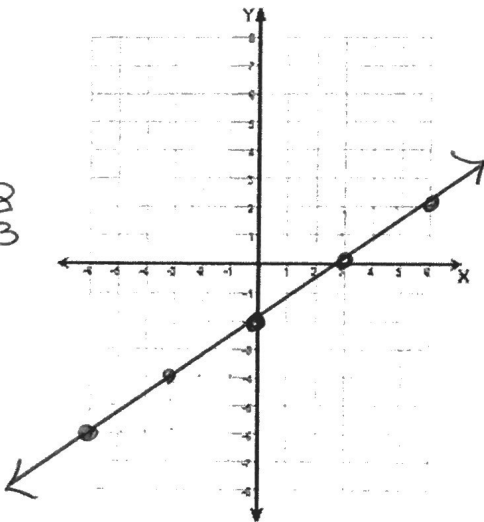
A)  $y = \frac{2}{3}x - 2$

$m = \frac{2}{3}$  y-intercept: -2

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

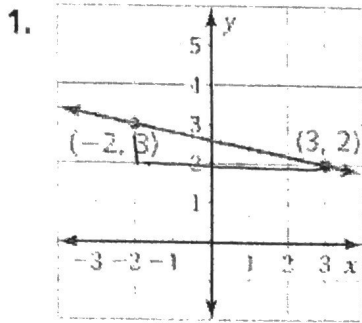
$m = -\frac{3}{2}$  y-intercept: 4

$\frac{2}{3} = \frac{1}{1.5}$

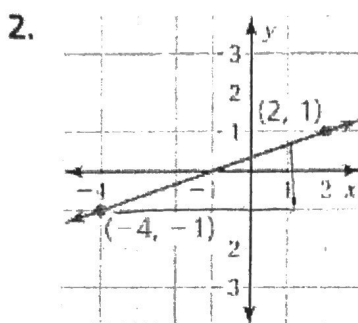


$-\frac{3}{2} = \frac{3}{-2}$

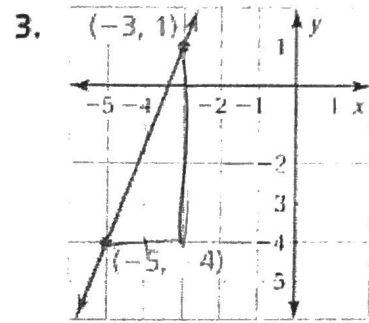
Find the slope of the line.



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



$$m = \frac{2}{5}$$



$$m = \frac{-5}{2}$$

Graphing Linear Equations in Slope-Intercept Form

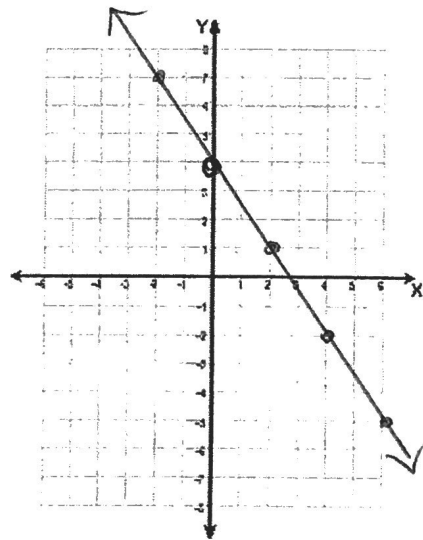
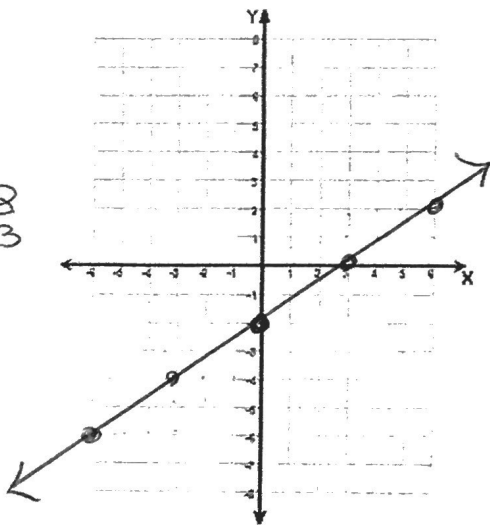
A)  $y = \frac{2}{3}x - 2$

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

$m = \frac{2}{3}$  y-intercept: -2

$m = \frac{-3}{2}$  y-intercept: 4

$\frac{2}{3} = \frac{1}{1.5}$



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



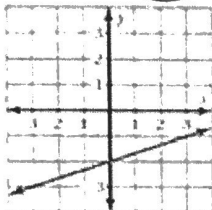
## Practice and Problem Solving

Match the equation with its graph. Identify the slope and the y-intercept.

4.  $y = 2x + 1$

B

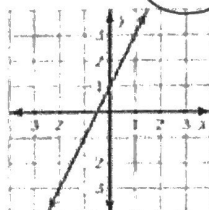
A.



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

A

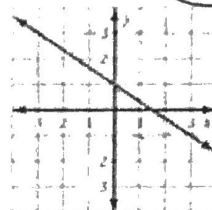
B.



6.  $y = -\frac{2}{3}x + 1$

C

C.



4.  $m = 2$   $b = 1$

5.  $m = \frac{1}{3}$   $b = -2$

6.  $m = -\frac{2}{3}$   $b = 1$

Rewrite lines into Slope-Intercept Form.  $y = mx + b$

$$\begin{array}{r} \text{a) } -4x + 2y = 8 \\ \quad +4x \quad \quad +4x \\ \hline \frac{2y}{2} = \frac{4x}{2} + \frac{8}{2} \end{array}$$

$$y = 2x + 4$$

$$\begin{array}{r} \text{b) } -4y - 32 = 2x \\ \quad \quad +32 \quad \quad +32 \\ \hline \frac{-4y}{-4} = \frac{2x}{-4} + \frac{32}{-4} \end{array}$$

$$y = -\frac{1}{2}x - 8$$

$$\begin{array}{r} \text{c) } 7y - 2x = 42 \\ \quad \quad +2x \quad +2x \\ \hline \frac{7y}{7} = \frac{2x}{7} + \frac{42}{7} \end{array}$$

$$y = \frac{2}{7}x + 6$$

$$\begin{array}{r} \text{d) } 27 = -3x - 9y \\ \quad \quad \quad -3x - 9y = 27 \\ \quad \quad +3x \quad \quad +3x \\ \hline \frac{-9y}{-9} = \frac{3x}{-9} + \frac{27}{-9} \end{array}$$

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

Identify lines in Slope-Intercept Form and Standard Form.

1) Which of the following is written in standard form?

A.  $8x + 7 = 9y$

B.  $-2x - 3y = 20$

C.  $y = -5x + 6$

D.  $5 = 2x - 3y$

$ax + by = c$

2) Which of the following is written in standard form?

A.  $y = 4x - 7$

B.  $\frac{1}{3}x + 4 = \frac{2}{5}y$

C.  $x + y = -18$

D.  $-4 + 15x = y$

$ax + by = c$

3) Which of the following is in slope-intercept form?

A.  $x = 3y + 6$

B.  $y = -2x + 9$

C.  $y - 18 = 2x$

D.  $2x + 3y = 6$

$y = mx + b$

4) Which of the following is in slope-intercept form?

A.  $7x - 10y = 12$

B.  $\frac{1}{3}x + 2y = \frac{2}{5}$

C.  $6y = 4 + 5x$

D.  $y = \frac{3}{5}x - 1$

$y = mx + b$

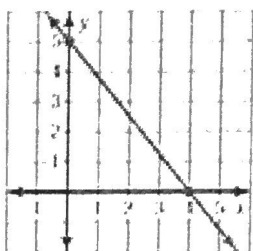
Match the equation with its graph.

11.  $15x - 12y = 60$

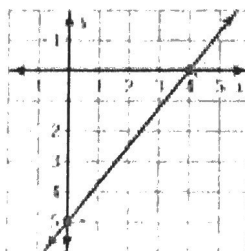
12.  $5x - 4y = 20$

13.  $10x + 8y = -40$

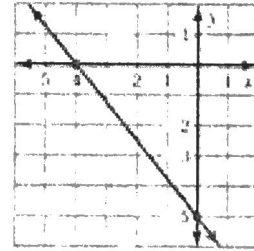
A.



B.



C.



B

A

C

$x$ -int: 4  
 $y$ -int: -5

$x$ -int: 4  
 $y$ -int: 5

$x$ -int: -4  
 $y$ -int: -5

Identify the x and y intercepts.

Find the x-intercept and y-intercept for each equation.

(Substitute 0 for x and y, or use the "finger" method)

a)  $-8x - 2y = 48$

x-int: -6 y-int: -24

b)  $3x - 6y = -24$

x-int: -8 y-int: 4

c)  $3x - 2y = -12$

x-int: -4 y-int: 6

d)  $10x + 2y = -30$

x-int: -3 y-int: -15

Graph a line in Standard Form

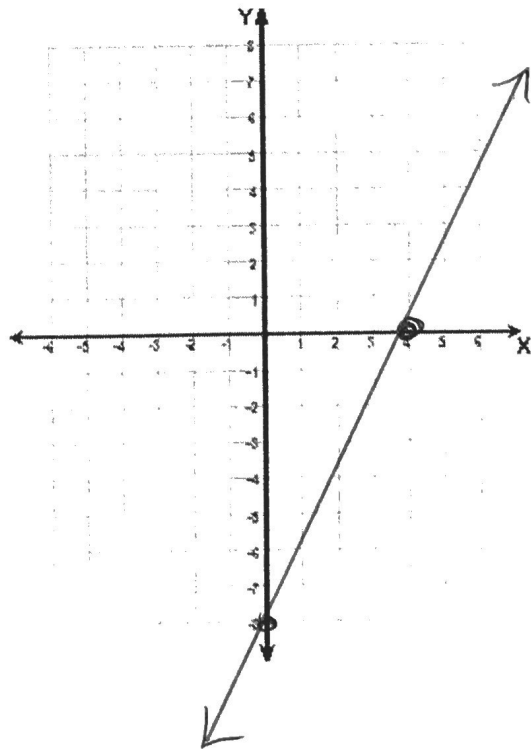
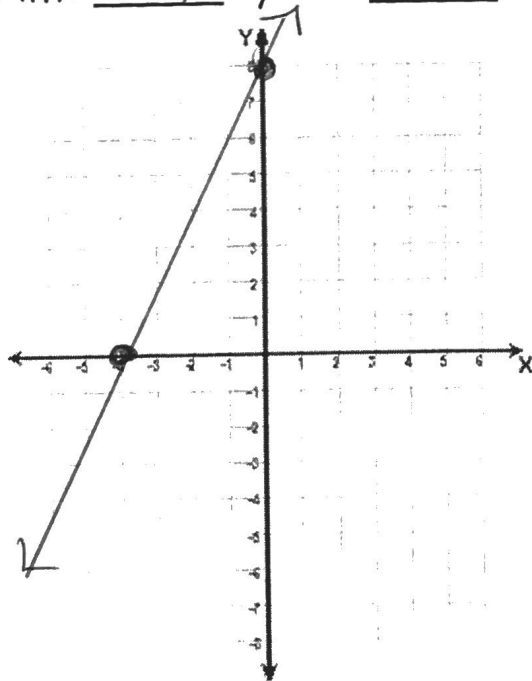
GRAPH the equations using the x-intercept and the y-intercept.

a)  $-10x + 5y = 40$

b)  $10y - 20x = -80$

x-int: -4 y-int: 8

x-int: ~~5~~ 4 y-int: -8



Rewrite lines into Standard Form.  $ax + by = c$

a)  $2y = -5x - 18$

$$+5x$$

$$5x + 2y = -18$$

b)  $12 - 6x = 3y$

$$+6x \quad +6y$$

$$6x + 3y = 12$$

OR  
 $-6x - 3y = -12$

c)  $3y = -3x + 18$

$$+3x \quad +3x$$

$$3x + 3y = 18$$

d)  $2x - 21 = 7y$

$$-2x \quad -2x$$

$$-2x + 7y = -21$$

$$-2x + 7y = -21$$

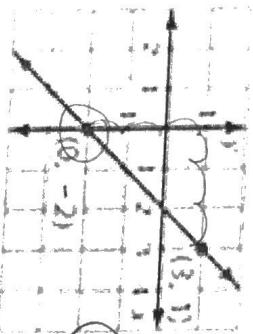
OR  
 $2x - 7y = 21$

Write an equation of the line in slope-intercept form (pg 195)

20.

$$m = \frac{2}{3} = 1$$

$$b = -2$$

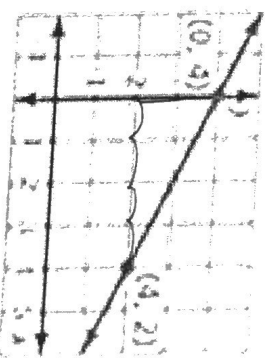


$$y = x - 2$$

21.

$$m = \frac{3}{4}$$

$$b = 4$$

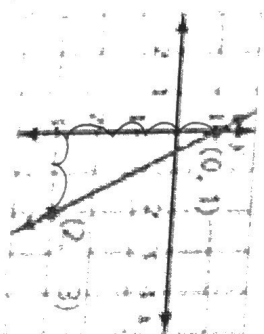


$$y = -\frac{1}{2}x + 4$$

22.

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

$$b = 1$$

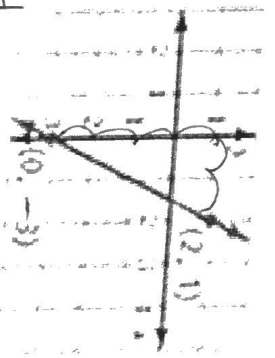


$$y = -2x + 1$$

23.

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

$$b = -3$$



$$y = 2x - 3$$

Write an equation of the line in slope-intercept form

A) Write an equation of the line that passes through the points (4, -3) and (0, -1)

$b = (0, -1) \rightarrow$  y-intercept is  $-1$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-1 - (-3)}{0 - 4} = \frac{-2}{-4} = \frac{1}{2}$$

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

B) Write an equation of the line that passes through the points (0, 1) and (5, -3)

$b = (0, 1) \rightarrow$  y-intercept is  $1$

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{-3 - 1}{5 - 0} = \frac{-4}{5}$$

$$y = -\frac{4}{5}x + 1$$

C) Write an equation of the line that passes through the points (-1, -1) and (1, 5)

1st: Find slope:  $\frac{5 - (-1)}{1 - (-1)} = \frac{6}{2} = 3$

2nd: Substitute:  $m = 3$   $\begin{pmatrix} 1 & 5 \\ x & y \end{pmatrix}$

$$5 = 3(1) + b$$

$$5 = 3 + b$$

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

$$2 = b$$

$$y = 3x + 2$$

D) Write an equation of the line that passes through the points (-9, 5) and (-3, 3)

1st:  $m = \frac{3 - 5}{-3 - (-9)} = \frac{-2}{6} = -\frac{1}{3}$

2nd:  $5 = -\frac{1}{3}(-9) + b$

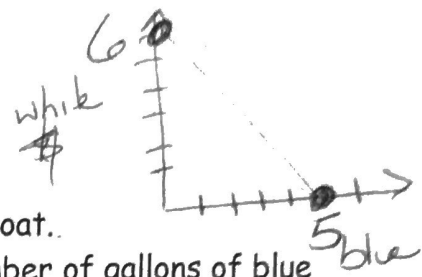
$$5 = 3 + b$$

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

$$2 = b$$

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





**PAINTING:** You used \$90 worth of paint for a school float.

- Graph the equation  $18x + 15y = 90$ , where  $x$  is the number of gallons of blue paint and  $y$  is the number of gallons of white paint.
- Interpret the  $x$  and  $y$ -intercepts.

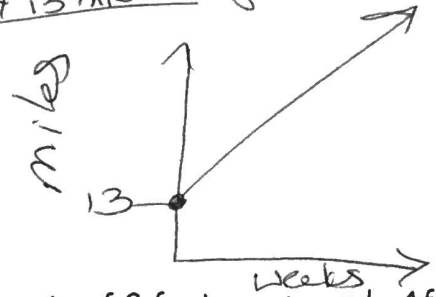
The  $x$ -intercept: If I only bought blue paint (0 gallons of white paint) I could pay for 5 gallons of blue paint.

The  $y$ -intercept: If I only bought white paint (0 gallons of blue paint) I could pay for 6 gallons of white paint.

**CONSTRUCTION:** A construction crew is extending a highway sound barrier that is 13 miles long. The crew builds  $\frac{1}{2}$  of a mile per week. Write an equation that represents the length  $y$  (in miles) of the barrier after  $x$  weeks.

$$y = \frac{1}{2}x + 13$$

Already 13 miles long



**KITE:** You are pulling your kite down at a rate of 2 feet per second. After 3 seconds, your kite is 54 feet above you.

- Write and Graph an equation that represents the height  $y$  (in feet) of the kite about you after  $x$  seconds.
- At what height was the kite flying before you began pulling it down?

$m = -2$  point  $(3, 54)$

$$y = mx + b$$

$$54 = -2(3) + b$$

$$54 = -6 + b$$

$$\begin{array}{r} +6 \quad +6 \\ \hline 60 = b \end{array}$$

$$y = -2x + 60$$