

# Round 1

Key

Answer the following questions. Be sure that all members of your group understand how to answer the questions also. At the end of the time, Ms. Smith will call one member from each group up to the board to explain how they did the problem. If the team member correctly explains the problem, then that team will earn points. At the end of all 5 rounds, the team with the most points wins 5 points extra credit on the test on Friday.

## Slope

Use the following given information to determine the slope.

1.) (0, 1), (3, 3)

$$\frac{3-1}{3-0} = \frac{2}{3}$$

2.) (4, -2), (5, -5)

$$\frac{-5 - (-2)}{5 - 4} = \frac{-3}{1}$$

3.) Working Outdoors in the Summer

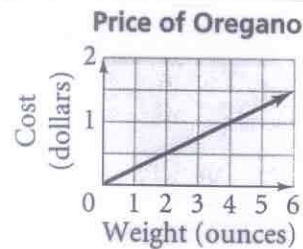
Temperature	Calories Burned per Day
68°F	3030
62°F	3130

Find the rate (or slope) calories are burned based on the outdoor temperature.

$$\frac{3030 - 3130}{68 - 62} = \frac{-100}{6}$$

$$= \frac{-50}{3}$$

4.)



(0,0) (4,1)

$$\frac{1-0}{4-0} = \frac{1}{4}$$

5.) Find the rate (or slope).

The cost of group tickets for a museum is \$48 for four people and \$78 for ten people.

Cost / Ticket (x)

$$\frac{78 - 48}{10 - 4} = \frac{30}{6} = \$5/\text{ticket}$$

(4, 48) (10, 78)

## Round 2

Key

Answer the following questions. Be sure that all members of your group understand how to answer the questions also. At the end of the time, Ms. Smith will call one member from each group up to the board to explain how they did the problem. If the team member correctly explains the problem, then that team will earn points. At the end of all 5 rounds, the team with the most points wins 5 points extra credit on the test on Friday.

### Rearranging Linear Equations to find Slope and y-intercept

Rearrange the following equations and find the slope and y-intercept.	
<p>1.)</p> $y + \frac{3}{4}x = 0$ $\begin{array}{r} -\frac{3}{4}x \quad -\frac{3}{4}x \\ \hline y = 0 - \frac{3}{4}x \end{array}$ <p>Slope = <math>-\frac{3}{4}</math></p> <p>y - intercept = 0</p>	<p>2.)</p> $y + x = 3$ $\begin{array}{r} -x \quad -x \\ \hline y = 3 - x \end{array}$ <p>Slope = -1</p> <p>y - intercept = 3</p>
<p>3.)</p> $5x - 2y = 8$ $\begin{array}{r} -5x \quad -5x \\ \hline -2y = 8 - 5x \\ \cdot 2 \quad \cdot 2 \\ y = -4 + \frac{5}{2}x \end{array}$ <p>Slope = <math>\frac{5}{2}</math></p> <p>y - intercept = -4</p>	<p>4.)</p> $3x - 4y = 9$ $\begin{array}{r} -3x \quad -3x \\ \hline -4y = 9 - 3x \\ \cdot 4 \quad \cdot 4 \\ y = -\frac{9}{4} + \frac{3}{4}x \end{array}$ <p>Slope = <math>\frac{3}{4}</math></p> <p>y - intercept = <math>\frac{9}{4}</math></p>

## Round 3

Answer the following questions. Be sure that all members of your group understand how to answer the questions also. At the end of the time, Ms. Smith will call one member from each group up to the board to explain how they did the problem. If the team member correctly explains the problem, then that team will earn points. At the end of all 5 rounds, the team with the most points wins 5 points extra credit on the test on Friday.

### Writing Linear Equations

Use the following given information to write linear equations in the  $y = a + bx$  form.

1.)  $(3, -5), b = 2$

$$-5 = a + 2(3)$$

$$-5 = a + 6$$

$$\begin{array}{r} -6 \\ -6 \end{array}$$

$$\hline -11 = a$$

$$y = -11 + 2x$$

2.)  $(-6, 1), b = -\frac{3}{4}$

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

$$1 = a + \frac{9}{2}$$

$$\begin{array}{r} \frac{9}{2} \\ -\frac{9}{2} \end{array}$$

$$\hline -\frac{7}{2} = a$$

$$y = -\frac{7}{2} - \frac{3}{4}x$$

3.)  $(7, 3), (2, 2)$

$$\frac{2-3}{2-7} = \frac{-1}{-5} = \frac{1}{5}$$

$$2 = a + \frac{1}{5}(2)$$

$$2 = a + \frac{2}{5}$$

$$\begin{array}{r} -\frac{2}{5} \\ -\frac{2}{5} \end{array}$$

$$\hline \frac{8}{5} = a$$

$$y = \frac{8}{5} + \frac{1}{5}x$$

4.)  $(3, 5), (5, 3)$

$$\frac{3-5}{5-3} = \frac{-2}{2} = -1$$

$$5 = a - 1(3)$$

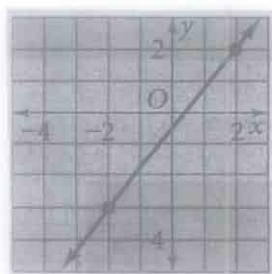
$$5 = a - 3$$

$$\begin{array}{r} +3 \\ +3 \end{array}$$

$$\hline 8 = a$$

$$y = 8 - 1x$$

5.) Write an equation for the line on the graph:



$(-2, 3) (2, 2)$

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

$$2 = a + \frac{-1}{4}(2)$$

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

$$\begin{array}{r} \frac{1}{2} \\ \frac{1}{2} \end{array}$$

$$\hline \frac{5}{2} = a$$

$$y = \frac{5}{2} - \frac{1}{4}x$$

# Round 4

Key

Answer the following questions. Be sure that all members of your group understand how to answer the questions also. At the end of the time, Ms. Smith will call one member from each group up to the board to explain how they did the problem. If the team member correctly explains the problem, then that team will earn points. At the end of all 5 rounds, the team with the most points wins 5 points extra credit on the test on Friday.

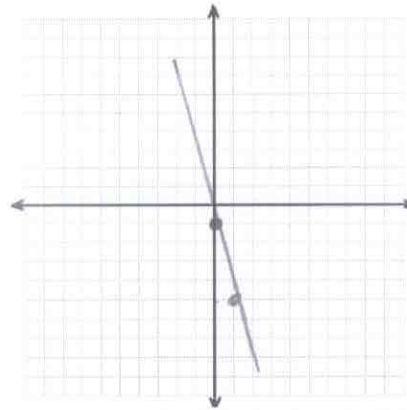
## Graphing Linear Equations

Graph each linear equation:

1.)  $y = -4x - 1$

Slope =  $-4/1$

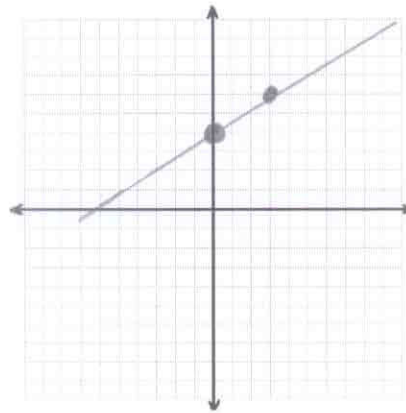
y - intercept =  $-1$



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

Slope =  $2/3$

y - intercept =  $4$



3.)  $3x - 8y = 72$

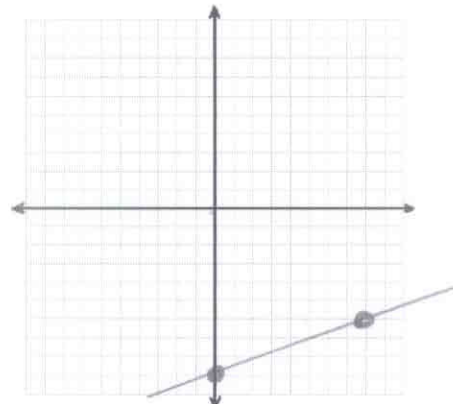
$-3x \quad -3x$

$$\frac{-8y = 72 - 3x}{-8 \quad -8}$$

$$y = -9 + \frac{3}{8}x$$

Slope =  $3/8$

Y - intercept =  $-9$



# Round 5

Key

Answer the following questions. Be sure that all members of your group understand how to answer the questions also. At the end of the time, Ms. Smith will call one member from each group up to the board to explain how they did the problem. If the team member correctly explains the problem, then that team will earn points. At the end of all 5 rounds, the team with the most points wins 5 points extra credit on the test on Friday.

## Graphing Inequalities

Graph the following inequalities:

1.)  $y < \frac{1}{4}x - 1$

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

y - intercept =  $-1$

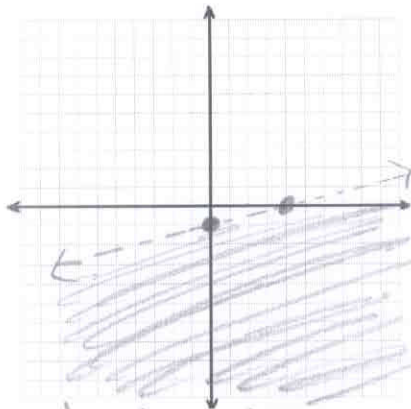
Solid or Dashed Line? *Dashed*

Plug in point (0, 0) to determine which side of the line should be shaded.

$$0 < \frac{1}{4}(0) - 1$$

$$0 < -1$$

*Untrue, so shade the side of the line that does NOT include (0,0).*



2.)  $y \leq 4x - 1$

Slope =  $4$

y - intercept =  $-1$

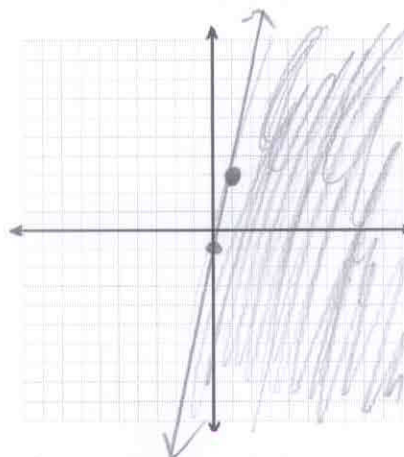
Solid or Dashed Line? *Solid*

Plug in point (0, 0) to determine which side of the line should be shaded.

$$0 \leq 4(0) - 1$$

$$0 \leq -1$$

*Untrue, so shade the side of the line that does NOT include (0,0).*



3.)  $2x + 3y \geq 6$

$$\begin{array}{r} -2x \quad -2x \\ \hline 3y \geq 6 - 2x \\ \hline y \geq 2 - \frac{2}{3}x \end{array}$$

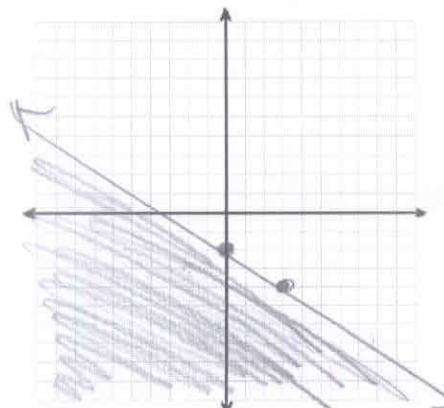
Slope =  $-\frac{2}{3}$

y - intercept =  $-2$

Solid or Dashed Line? *Solid*

Plug in point (0, 0) to determine which side of the line should be shaded.

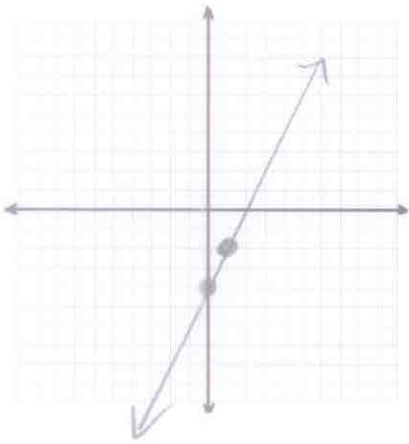
$2(0) + 3(0) \geq 6$  *Untrue, so shade the side of the line that Does NOT include (0,0)*

$$0 \geq 6$$


# Round 6

Key

Answer the following questions. Be sure that all members of your group understand how to answer the questions also. At the end of the time, Ms. Smith will call one member from each group up to the board to explain how they did the problem. If the team member correctly explains the problem, then that team will earn points. At the end of all 5 rounds, the team with the most points wins 5 points extra credit on the test on Friday.

Find the solution to the system.		
System #1: $y = -4 + 2x$ $4x - 2y = 8$	Does this equation need to be rearranged in order to be in the $y = a + bx$ form? <u>No</u> $y = -4 + 2x$  Slope: <u>2</u>  y-int.: <u>-4</u>	Does this equation need to be rearranged in order to be in the $y = a + bx$ form? <u>yes</u> $4x - 2y = 8$ $\begin{array}{r} -4x & -4x \\ \hline -2y & = 8 - 4x \\ -2 & -2 \\ \hline y & = -4 + 2x \end{array}$  Slope: <u>2</u>  y-int.: <u>-4</u>
Graph: 	Answer: <u>(2, 4)</u> (make sure it's written as a coordinate)	
<b>Plug in your answer (x, y) into both original equations to CHECK for correctness.</b>		
$y = -4 + 2x$  <u>Same line</u>	$4x - 2y = 8$  <u>Same line</u>	