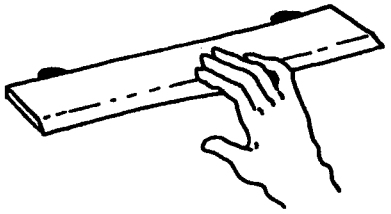
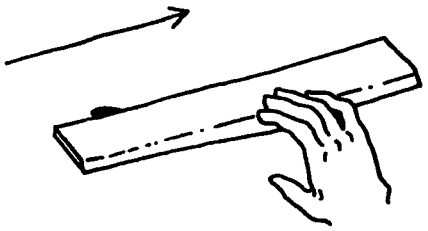
The Slope of a Line

If we want to give someone directions for drawing a line, we can do it two ways:

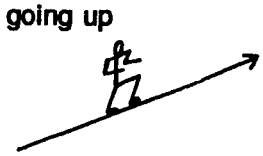
(1) We can give two points the line should go through.

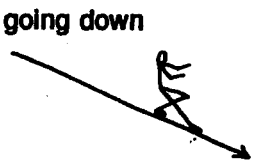


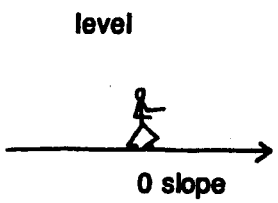
(2) We can give the slant of the line and one point it should pass through.



We use a positive or negative number or 0 to describe a line's slant. This number is called its **slope**. To get a picture of positive, negative and 0 slopes, you can think of someone walking from left to right:



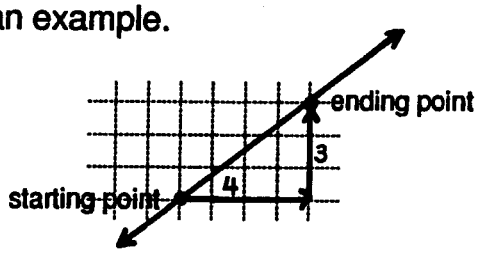




We find the slope by figuring out how far to the right (+) or left (–) and how far up (+) or down (–) we have to go to get from one point on the line to another. Then we make a fraction from the two distances as follows.

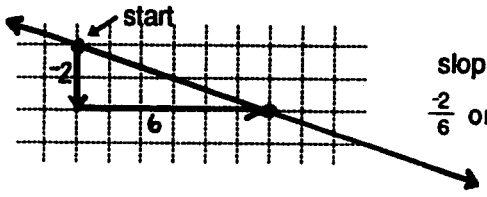
$$\text{slope} = \frac{\text{distance up or down}}{\text{distance right or left}} = \frac{\textbf{rise}}{\textbf{run}}$$

Here is an example.

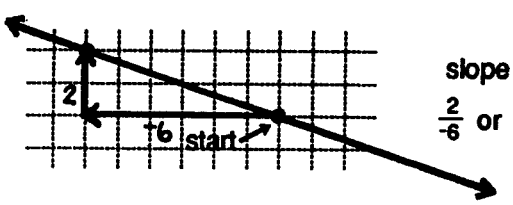


$$\text{slope} = \frac{\text{rise}}{\text{run}} = \frac{3}{4}$$

It doesn't matter which point we start with. The number will be the same either way.

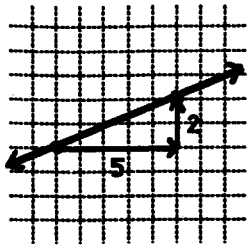


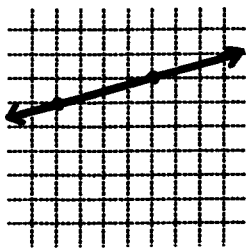
slope is $\frac{-2}{6}$ or $\frac{-1}{3}$

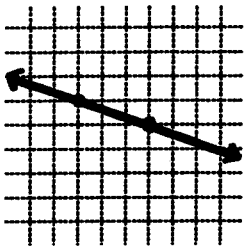


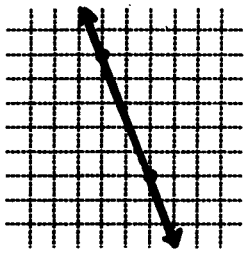
slope is $\frac{2}{-6}$ or $\frac{-1}{3}$

Find the slope of each line. Simplify the slope or write it as an integer if you can.

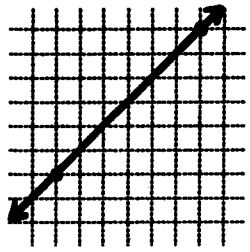


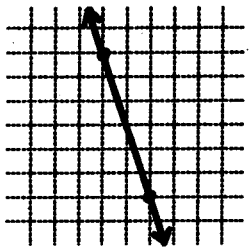


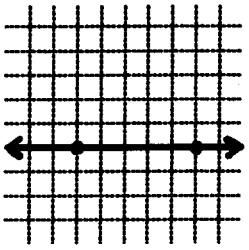


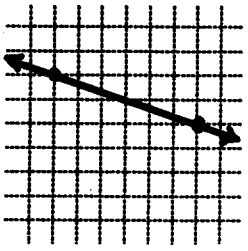


_____ _____ _____ _____



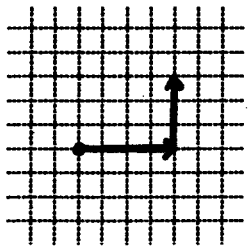




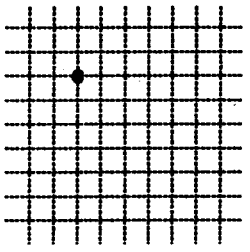


_____ _____ _____ _____

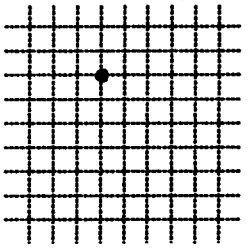
Through each point draw a line that has the slope shown below the grid. Use a ruler.



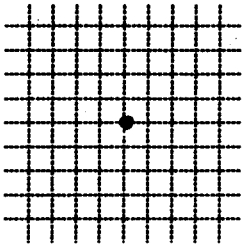
$\frac{3}{4}$



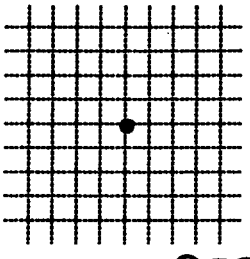
$\frac{-3}{4}$



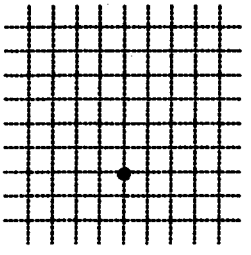
$\frac{-3}{2}$



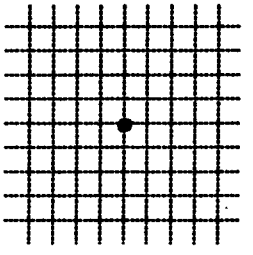
$\frac{3}{2}$



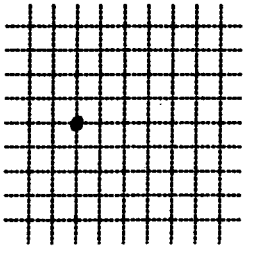
4° (4 equals $\frac{4}{1}$.)



$\frac{1}{3}$



-2



$\frac{1}{2}$

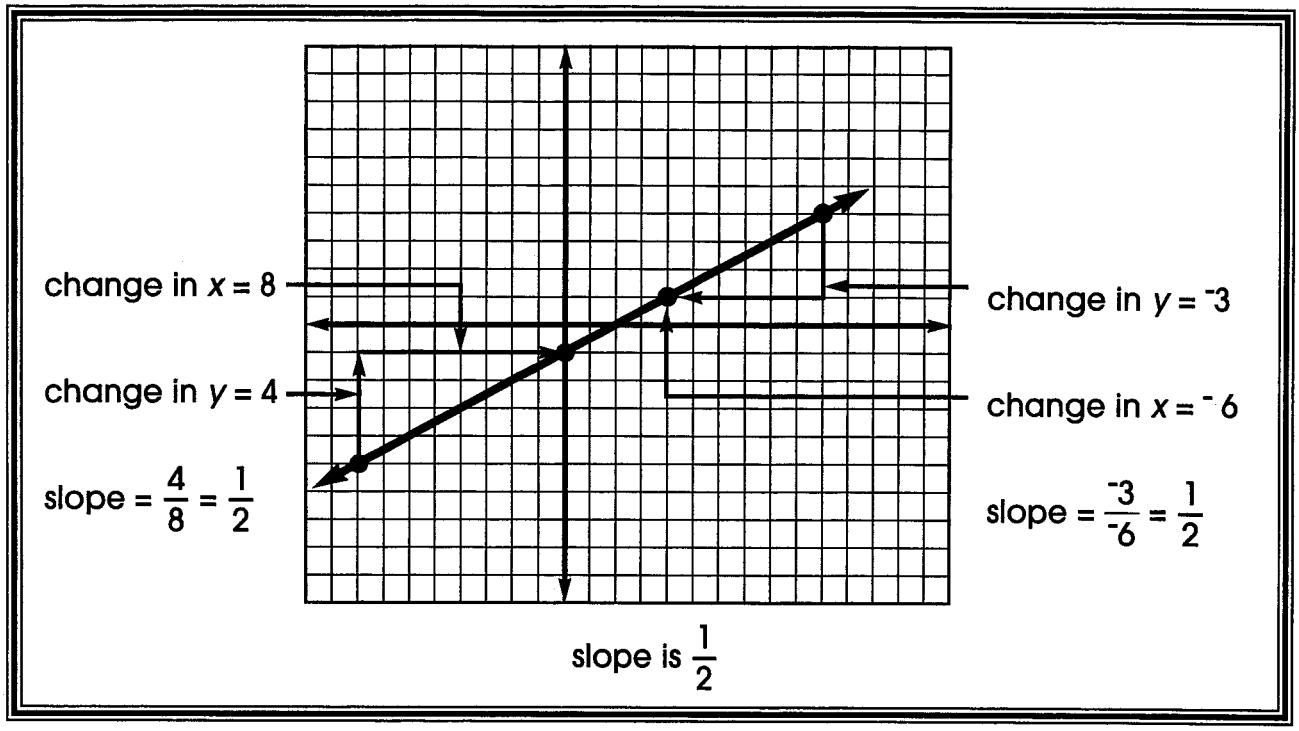
Name _____ Date _____

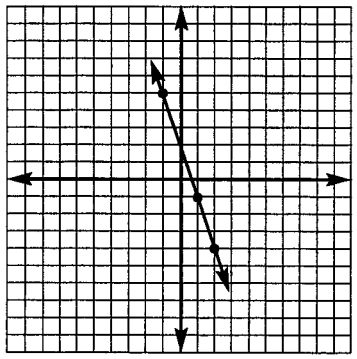
Finding Slope Using a Graph

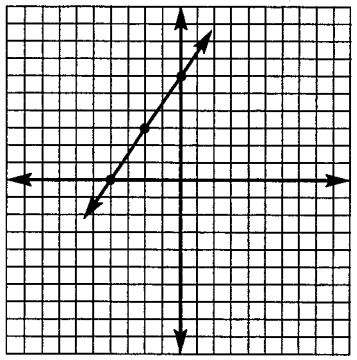
Find the slope of the lines passing through the given points.

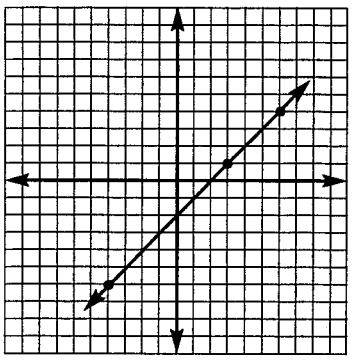
$$\text{slope} = \frac{\text{change in } y}{\text{change in } x}$$

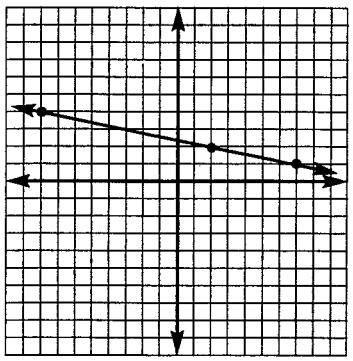
Choose any 2 points to count the change.

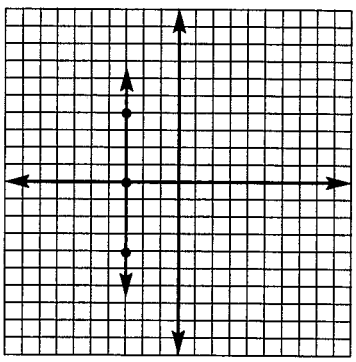


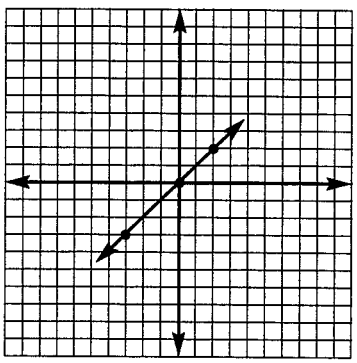
1. 

2. 

3. 

4. 

5. 

6. 

0-7424-1787-5 Pre-Algebra

Name _____ Date _____

Graphing Linear Equations Using Slope

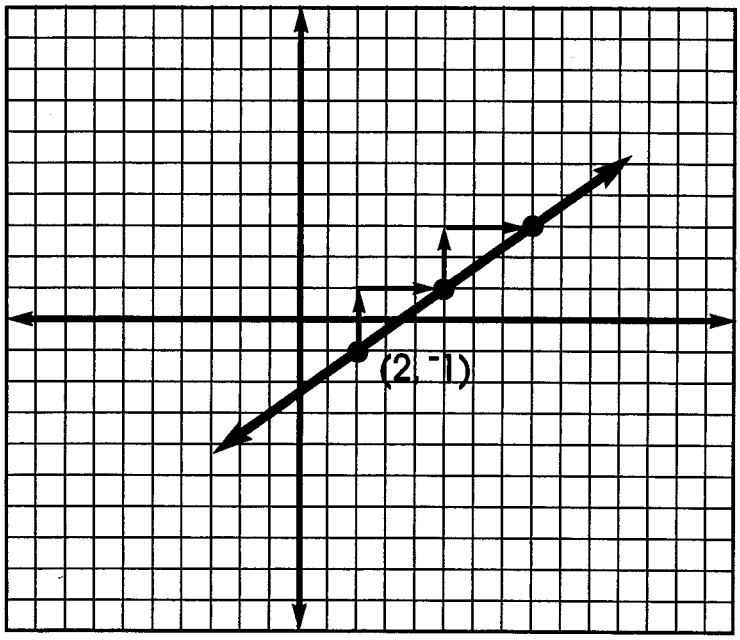
Graph the line that contains the given point and has the given slope.

$(2, -1)$, $\frac{2}{3}$

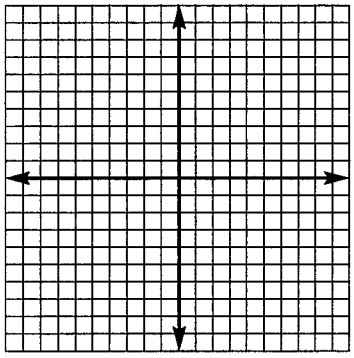
a. Plot point.

b. Locate other points by moving up 2 units and to the right 3 units.

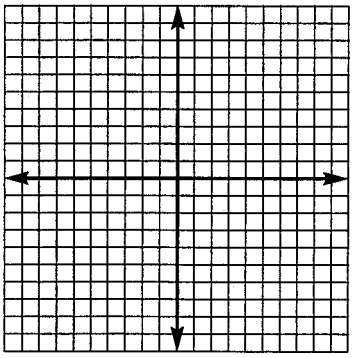
c. Connect the points with a line



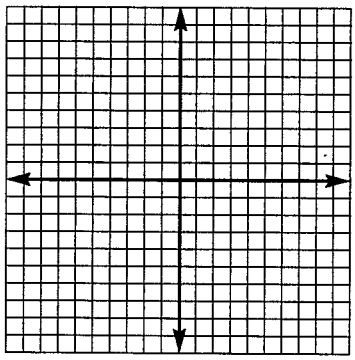
1. $(-5, -2)$, $-\frac{1}{2}$



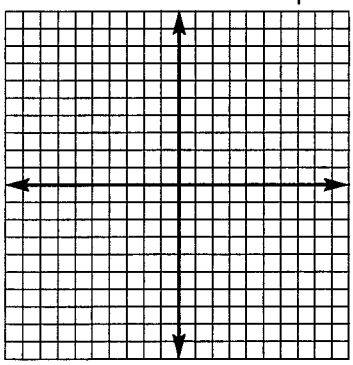
3. $(2, -3)$, $\frac{3}{4}$



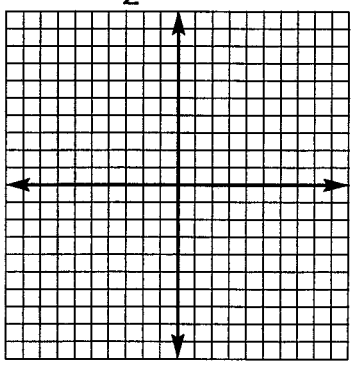
5. $(-1, -4)$, $-\frac{1}{4}$



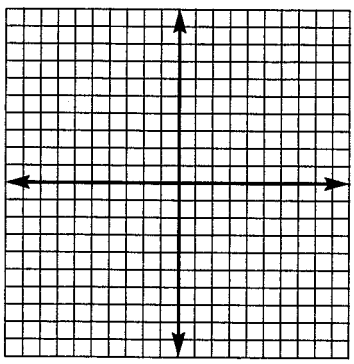
2. $(4, 2)$, 3 (note: $3 = \frac{3}{1}$)



4. $(0, 2)$, $-\frac{5}{2}$

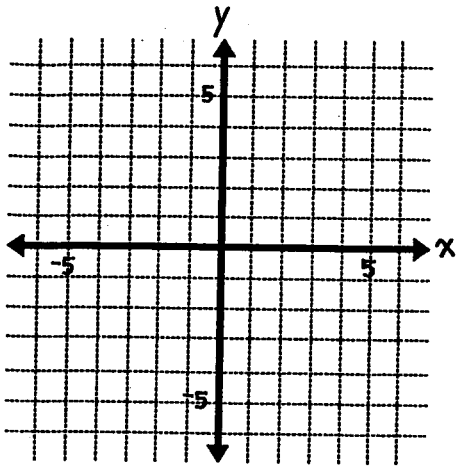


6. $(3, -2)$, -2

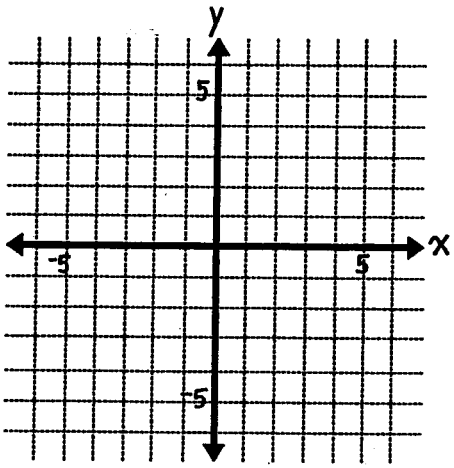


0-7424-1787-5 Pre-Algebra

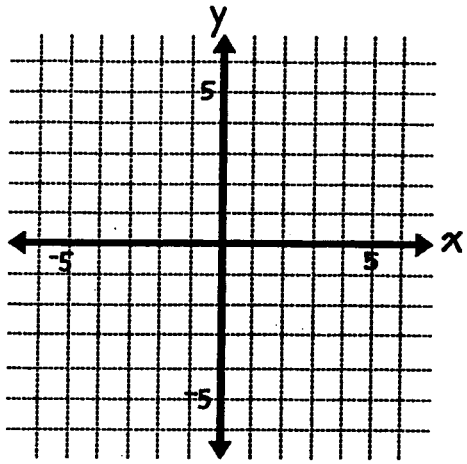
In each problem first plot the given point. Then use a ruler to draw a line through the point with the given slope.



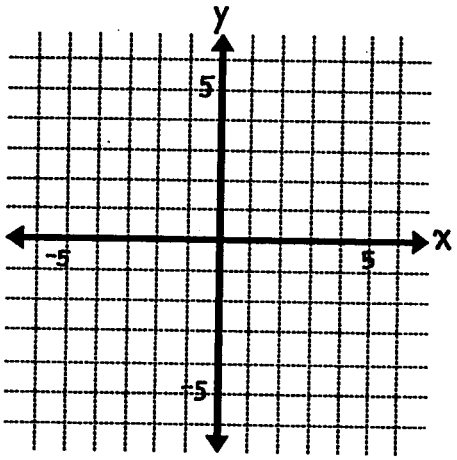
$(-2, -4)$ slope: $\frac{5}{3}$



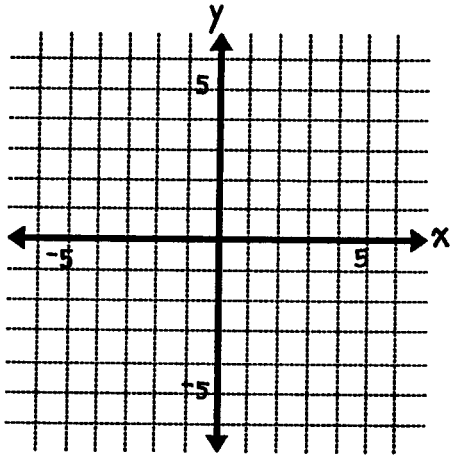
$(1, 1)$ slope: $\frac{2}{3}$



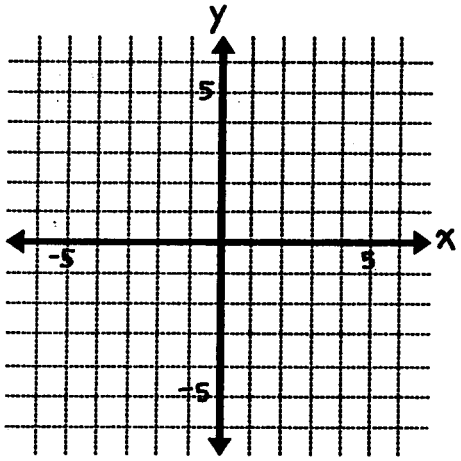
$(-3, 1)$ slope: 2



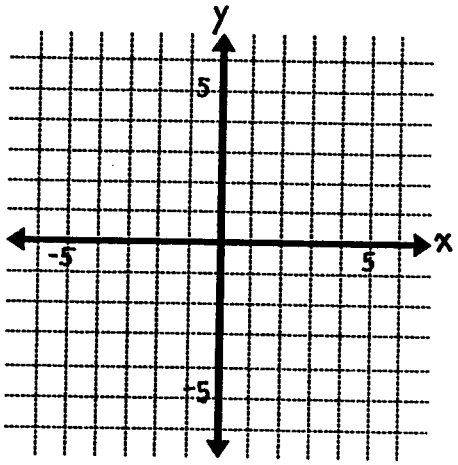
$(0, 0)$ slope: $\frac{1}{5}$



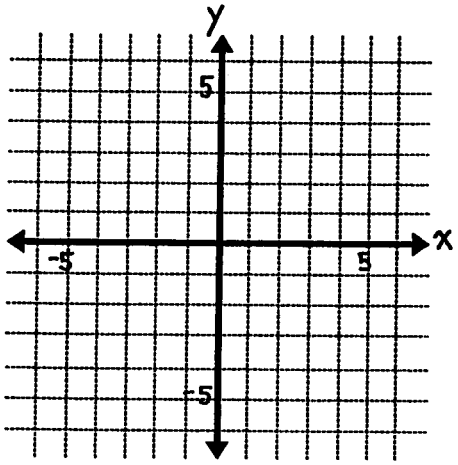
$(-4, 1)$ slope: $\frac{-1}{4}$



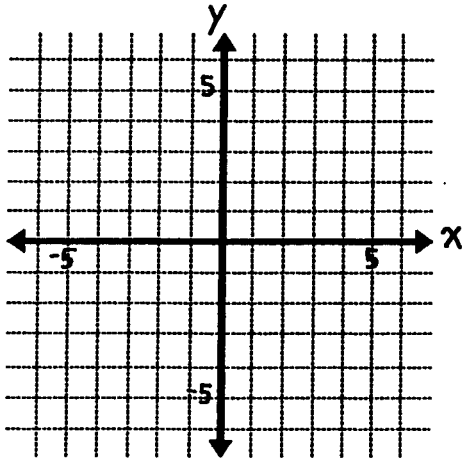
$(-3, -5)$ slope: 3



$(0, 5)$ slope: $\frac{-3}{4}$



$(0, -3)$ slope: 1



$(0, 1)$ slope: -1