

### 3.6 EQUATIONS IN SLOPE-INTERCEPT FORM

Any equation  $y = mx + b$  has a graph that is a straight line.  
 The line crosses the y-axis at  $(0, b)$ . This is the **y-intercept**.  
 The line has a slope of **m**.

For each equation below, tell whether it is in slope-intercept form.

- If it is, name the slope **m** and y-intercept **b**.
- If not, put in slope-intercept form, then name slope **m** and y-intercept **b**.

1.  $y = \frac{4}{5}x - 8$

slope-intercept form: \_\_\_\_\_

slope (m): \_\_\_\_\_

y-intercept (b): \_\_\_\_\_

3.  $3x - 4y = 8$

slope-intercept form: \_\_\_\_\_

slope (m): \_\_\_\_\_

y-intercept (b): \_\_\_\_\_

5.  $x = 8$

slope-intercept form: \_\_\_\_\_

slope (m): \_\_\_\_\_

y-intercept (b): \_\_\_\_\_

2.  $2x + y = 5$

slope-intercept form: \_\_\_\_\_

slope (m): \_\_\_\_\_

y-intercept (b): \_\_\_\_\_

4.  $10y = 30x$

slope-intercept form: \_\_\_\_\_

slope (m): \_\_\_\_\_

y-intercept (b): \_\_\_\_\_

6.  $2y = -10$

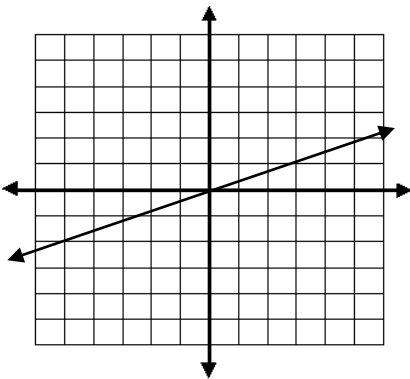
slope-intercept form: \_\_\_\_\_

slope (m): \_\_\_\_\_

y-intercept (b): \_\_\_\_\_

For each graph below find the slope and y-intercept. Then write the equation of the line in  $y = mx + b$  form.

7.

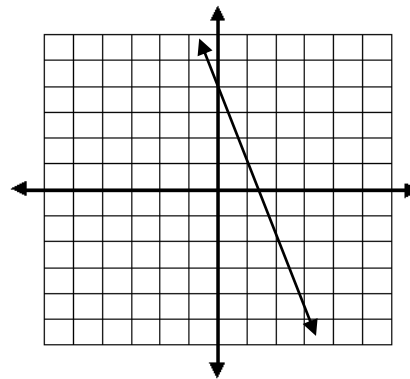


slope (m): \_\_\_\_\_

y-intercept (b): \_\_\_\_\_

equation \_\_\_\_\_

8.



slope (m): \_\_\_\_\_

y-intercept (b): \_\_\_\_\_

equation \_\_\_\_\_

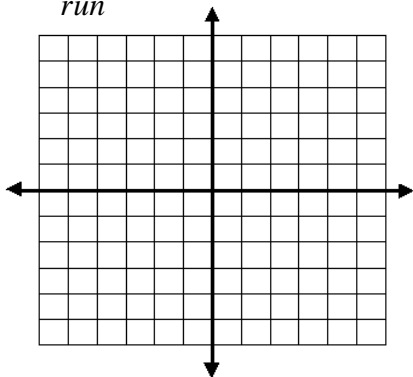
## USING THE Y-INTERCEPT AND SLOPE TO GRAPH A LINE

1. Write the equation in the form  $y = mx + b$ .
2. The y-intercept is  $(0, b)$ . Plot the point.
3. The slope is the number  $m$ . Starting at the y-intercept, move up or down as indicated by the rise. Then move left or right as indicated by the run. Plot this point.
4. Draw the line through the points.

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

y-intercept \_\_\_\_\_

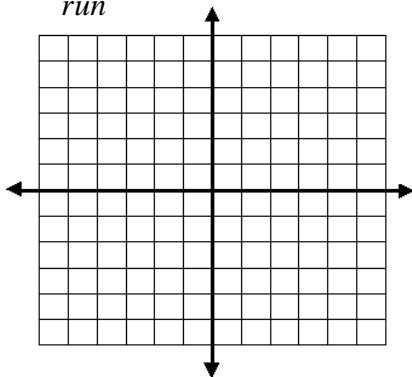
$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$



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

y-intercept \_\_\_\_\_

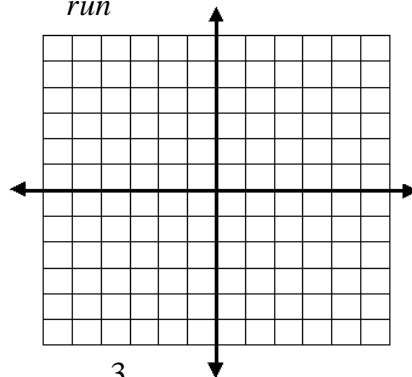
$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$



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

y-intercept \_\_\_\_\_

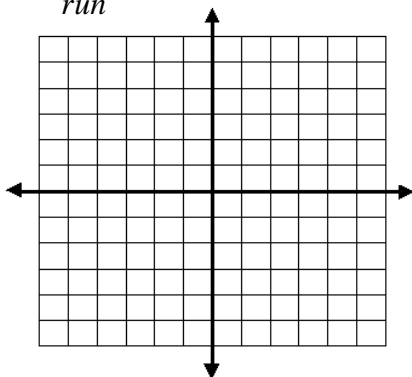
$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$



4.  $y = 2x - 4$

y-intercept \_\_\_\_\_

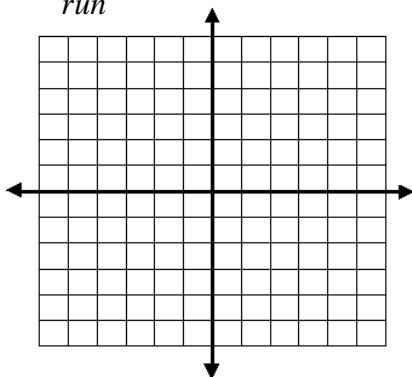
$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$



5.  $y = -3x - 1$

y-intercept \_\_\_\_\_

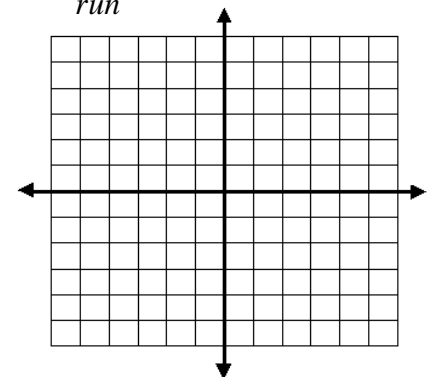
$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$



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

y-intercept \_\_\_\_\_

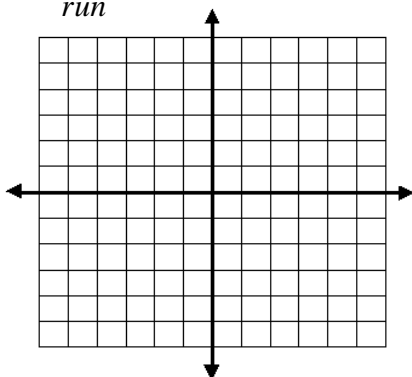
$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$



7.  $4x + 3y = 0$

y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

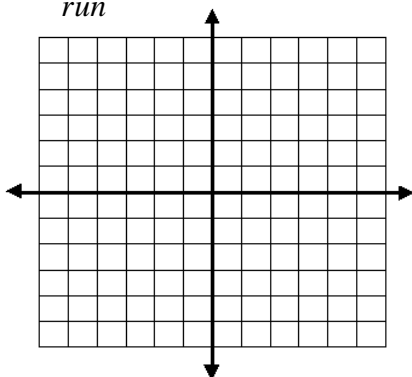
$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$



8.  $2x + 2y = 5$

y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

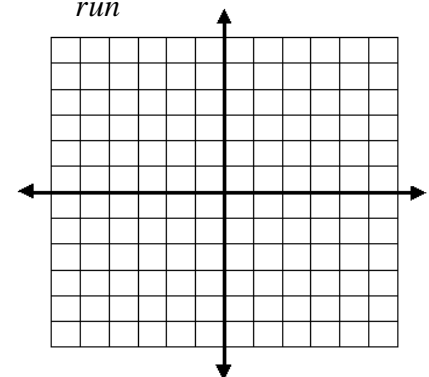
$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$



9.  $y - 3 = 0$

y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

$$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$$

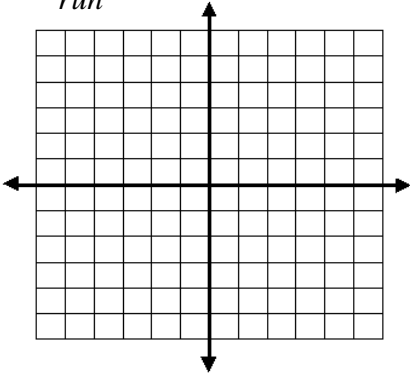


## 2.6 HOMEWORK

1.  $y = 4x - 2$

y-intercept \_\_\_\_\_

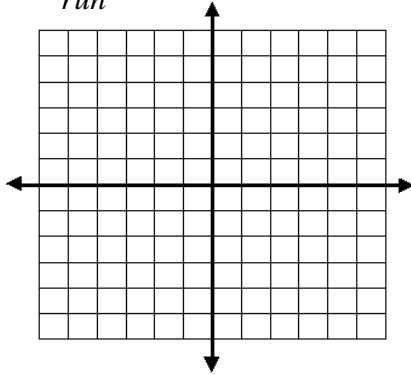
$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



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

y-intercept \_\_\_\_\_

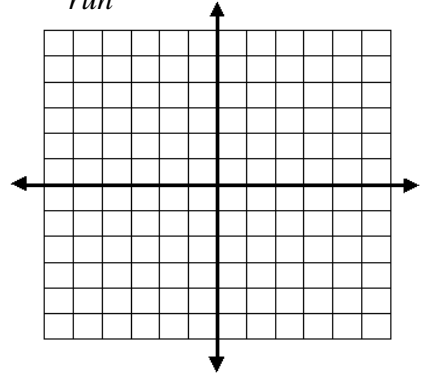
$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



3.  $y = \frac{5}{3}x$

y-intercept \_\_\_\_\_

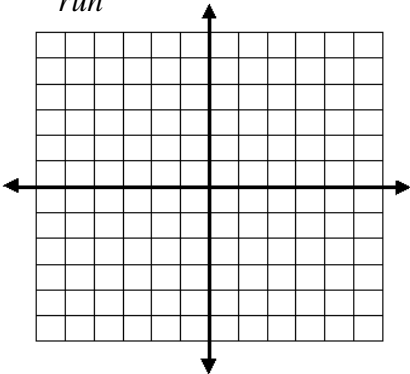
$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



4.  $3y = -2x + 6$

y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

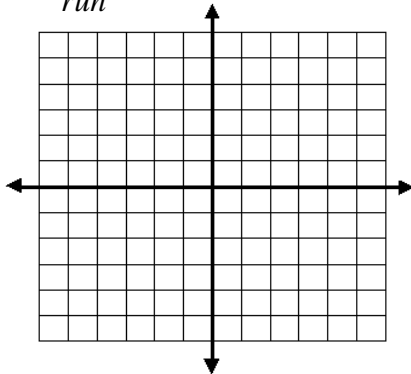
$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



5.  $-y = 3x - 1$

y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

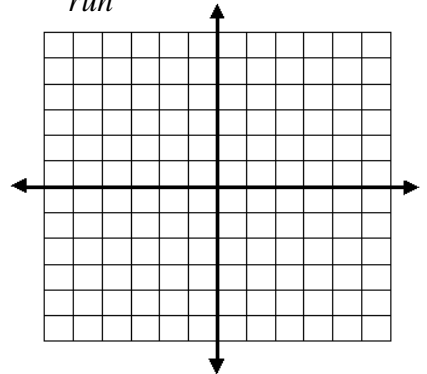
$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



6.  $-5y = -3x + 10$

y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

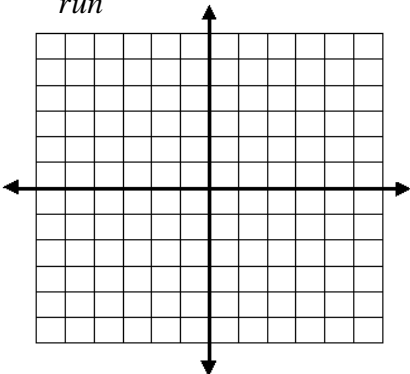
$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



7.  $-3x + 2y = 2$

y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

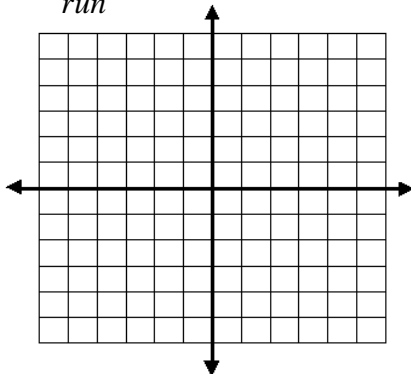
$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



8.  $x - 4y = 8$

y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

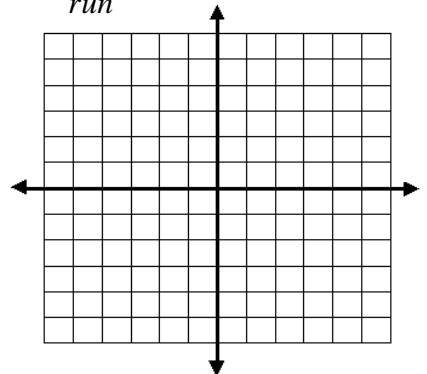
$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



9.  $2x + y = -3$

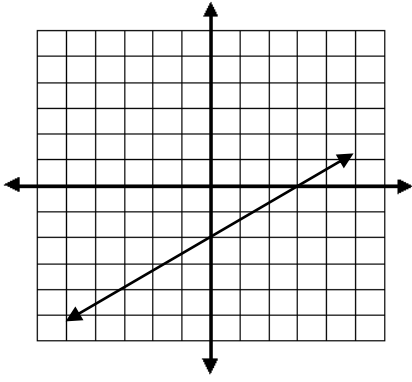
y = \_\_\_\_\_  
y-intercept \_\_\_\_\_

$m = \frac{\text{rise}}{\text{run}} = \underline{\hspace{2cm}}$



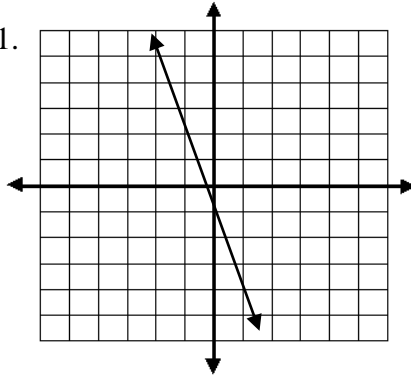
Find the slope and y-intercept of each line then write an equation for each graph in the form  $y = mx + b$ .

10.



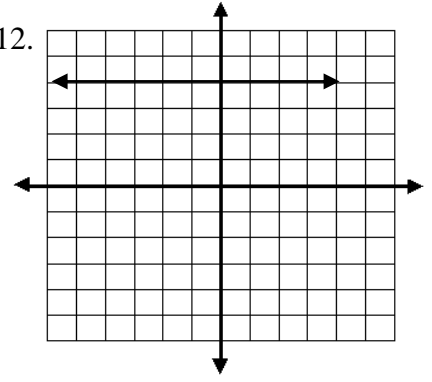
Equation: \_\_\_\_\_

11.



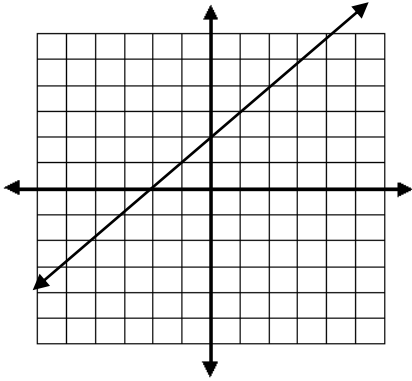
Equation: \_\_\_\_\_

12.



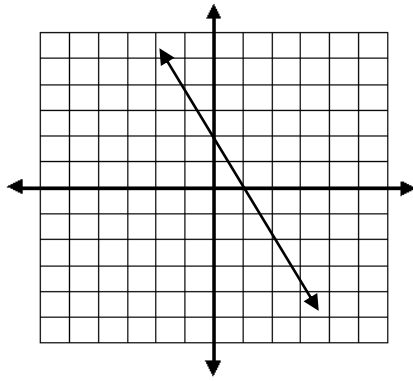
Equation: \_\_\_\_\_

13.



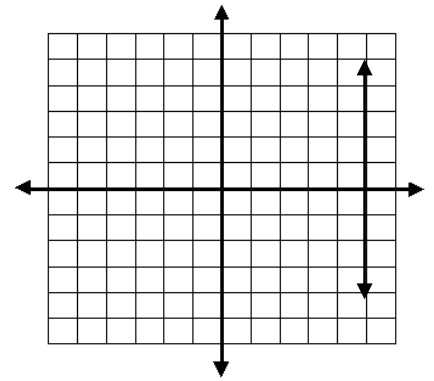
Equation: \_\_\_\_\_

14.



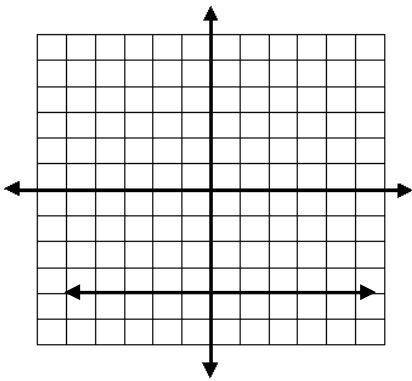
Equation: \_\_\_\_\_

15.



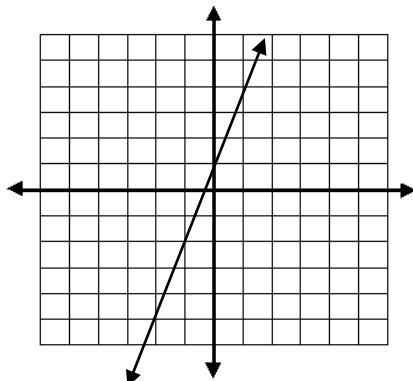
Equation: \_\_\_\_\_

16.



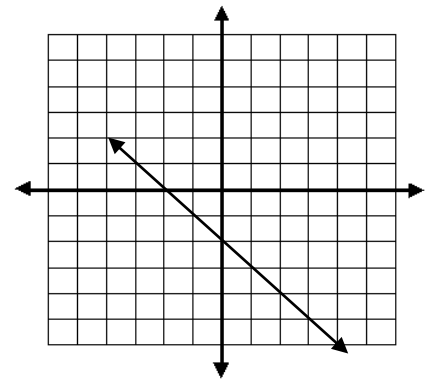
Equation: \_\_\_\_\_

17.



Equation: \_\_\_\_\_

18.



Equation: \_\_\_\_\_