

4.4

Graphing and Writing Linear Equations

Today's Learning Goals:

- Find slopes and y-intercepts of graphs of linear equations.
- Graph linear equations written in slope-intercept form.

DO NOW

1. Find the slope of the line that passes through the points (3, 1) and (4, -5).
2. Find the slope of the line that passes through the points (1, 5) and (1, 6).

Graphing Linear Equations

Graph the following using 3 points.

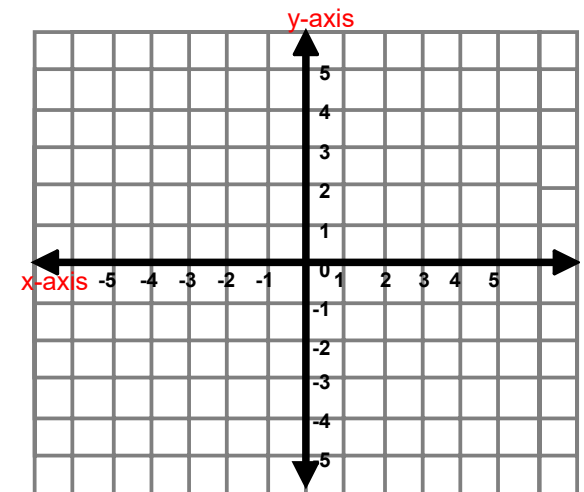
1) $y = 2x - 3$

- a) Pick any two points and find the slope.

$m = \underline{\hspace{2cm}}$

- b) Where does the graph intersect the y-axis.

$y\text{-intercept} = \underline{\hspace{2cm}}$



Graphing Linear Equations

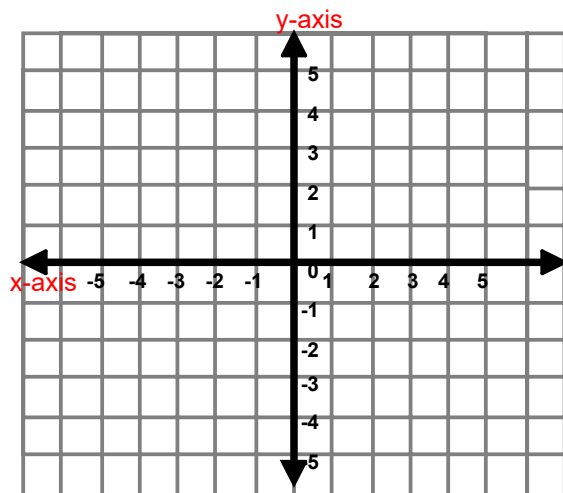
Graph the following using 3 points.

2) $y = -3x + 1$

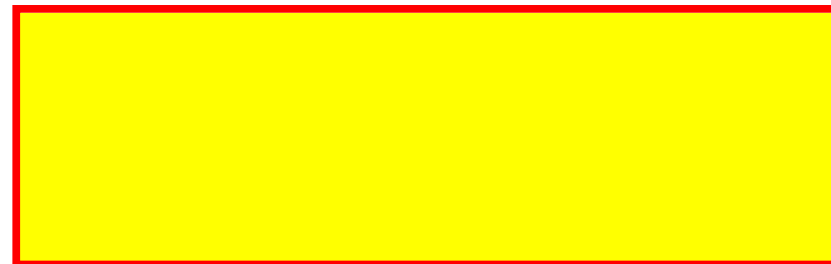
- a) Pick any two points and find the slope.
 $m = \underline{\hspace{2cm}}$

- b) Where does the graph intersect the y-axis.

$y\text{-intercept} = \underline{\hspace{2cm}}$



Slope-Intercept Form of a Linear Equation

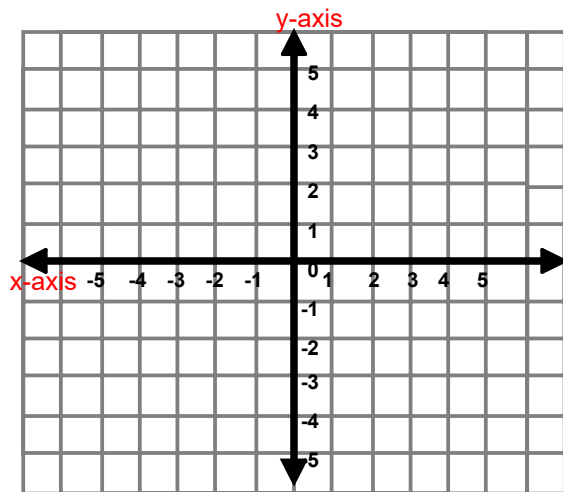


Slope

Graphing Linear Equations

Graph the following equation using slope-intercept form.

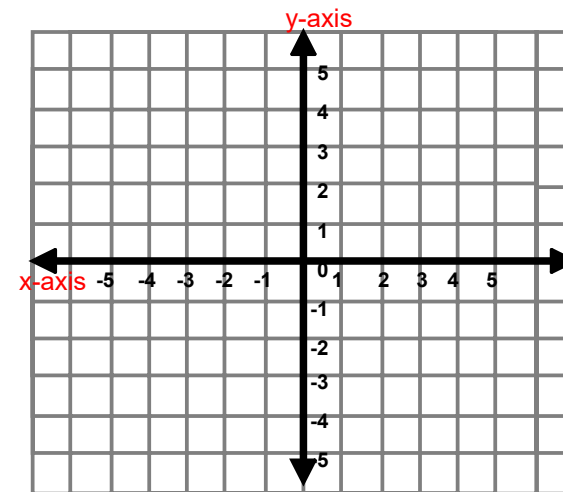
1) $y = 2x - 3$



Graphing Linear Equations

Graph the following equation using slope-intercept form.

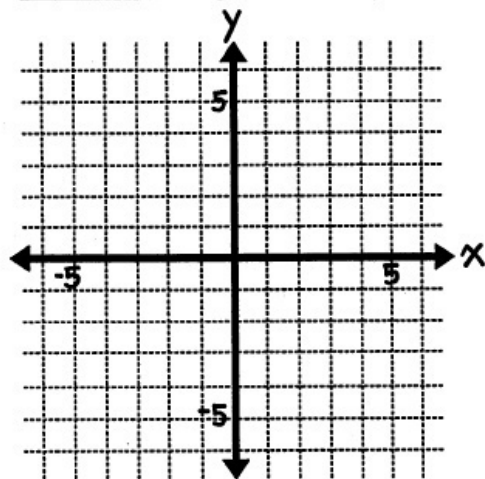
2) $y = -3x + 1$



Write the slope and y-intercept. Then plot them. Finish by graphing the line.

3) $y = 2x - 5$

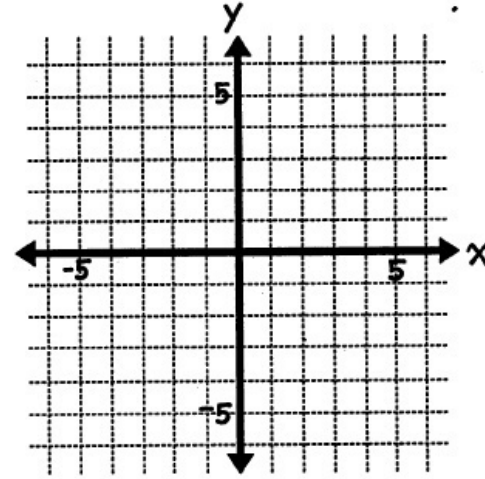
slope: _____ y-intercept: _____



Write the slope and y-intercept. Then plot them. Finish by graphing the line.

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

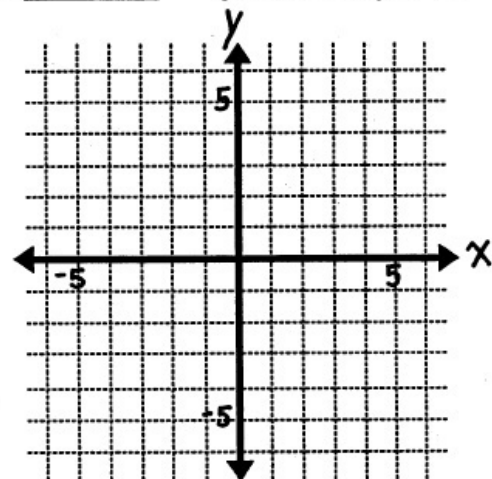
slope: _____ y-intercept: _____



Write the slope and y-intercept. Then plot them. Finish by graphing the line.

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

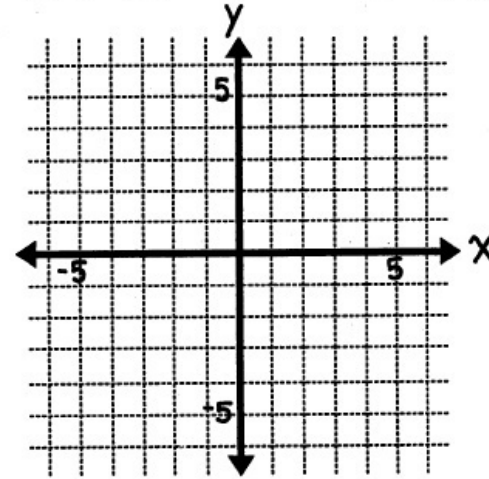
slope: _____ y-intercept: _____



Write the slope and y-intercept. Then plot them. Finish by graphing the line.

6) $y = \frac{3}{4}x$

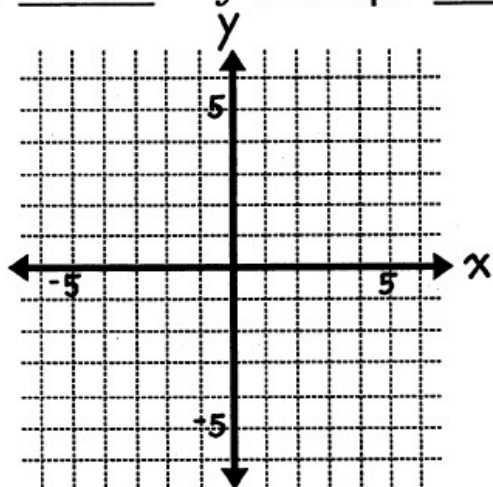
slope: _____ y-intercept: _____



Write the slope and y-intercept. Then plot them. Finish by graphing the line.

7) $y = x - 3$

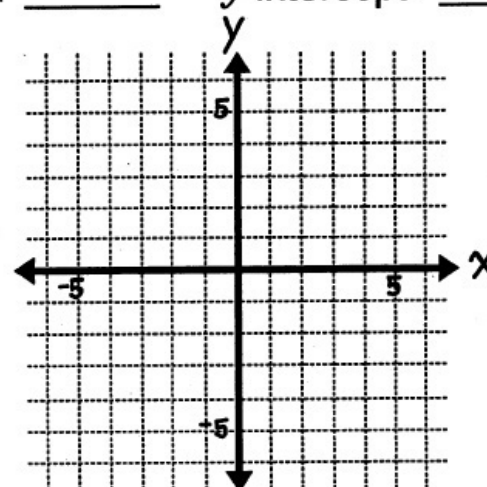
slope: _____ y-intercept: _____



Write the slope and y-intercept. Then plot them. Finish by graphing the line.

8) $y = -x + 4$

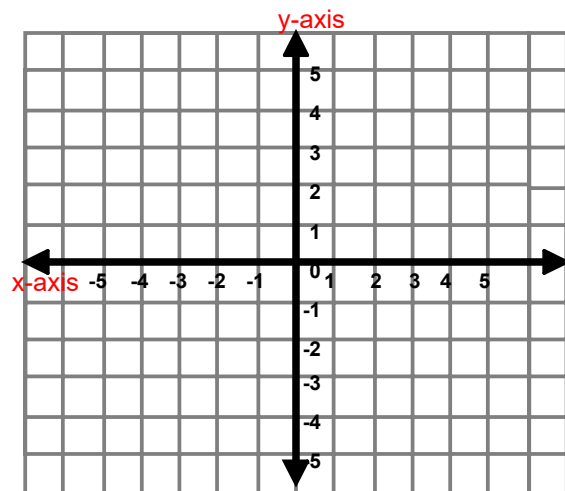
slope: _____ y-intercept: _____



Graphing Linear Equations

Graph the following equation using slope-intercept form.

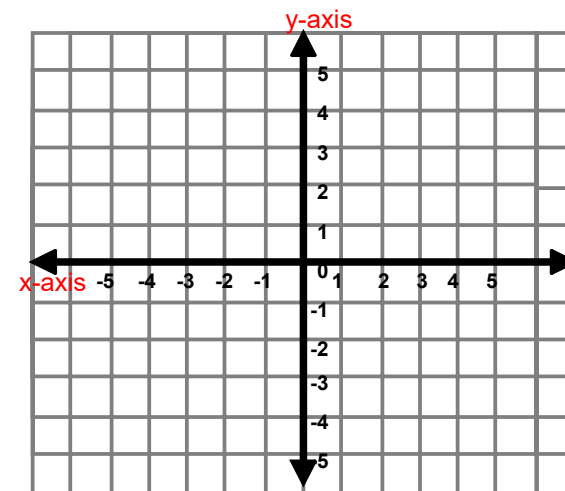
9) $y - 2 = \frac{3}{2}x$



Graphing Linear Equations

Graph the following equation using slope-intercept form.

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



Slope-Intercept Form

What is the equation of a line in slope-intercept form?

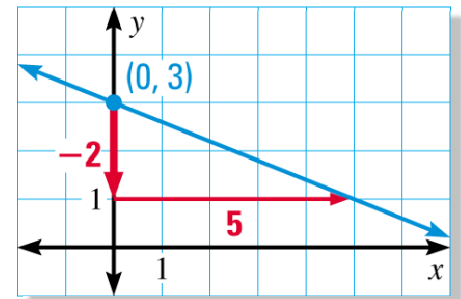


Example

- 11) Write an equation of the line with a slope of -2 and a y-intercept of 5.

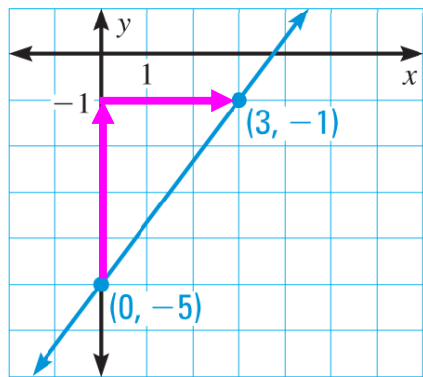
Example

- 12) Write an equation of the line shown.



Example

- 13) Write an equation of the line shown.

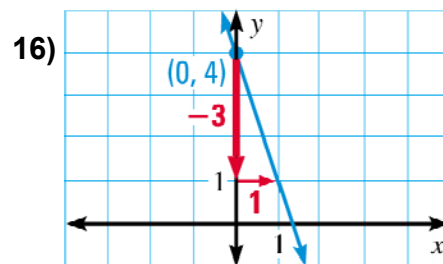
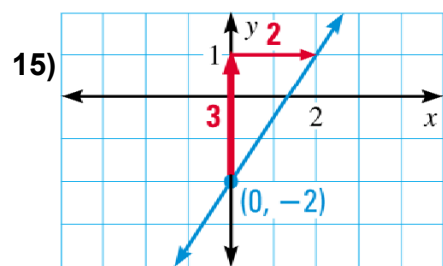


Practice

- 14) Write an equation of the line with a slope of 8 and a y-intercept of -7.

Practice

Write an equation of the line shown.



APPLICATION



The cost y (in dollars) of taking a taxi x miles is $y = 2.5x + 2$.

(a) Graph the equation. (b) Interpret the y -intercept and the slope.

