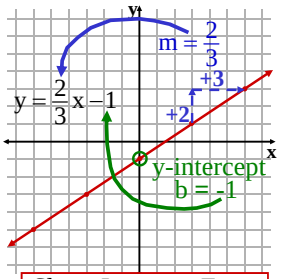
Lesson 7-7b

Objective - To graph linear equations using the slope and y-intercept.

Complete the table and graph.

x	$y = \frac{2}{3}x - 1$
-6	$\frac{2}{3}(-6) - 1 = -5$
-3	$\frac{2}{3}(-3) - 1 = -3$
0	$\frac{2}{3}(0) - 1 = -1$
3	$\frac{2}{3}(3) - 1 = 1$
6	$\frac{2}{3}(6) - 1 = 3$



Slope-Intercept Form
y = mx + b

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y = mx + b

Identify the slope and y-intercept in each equation.

1) $y = 3x + 5$
$m = 3 \quad b = 5$

2) $y = \frac{4}{5}x - 1$
$m = \frac{4}{5} \quad b = -1$

3) $y = -7x$
$m = -7 \quad b = 0$

4) $y = -x + 3$
$m = -1 \quad b = 3$

5) $y = 4 \quad y = 0 \bullet x + 4$
$m = 0 \quad b = 4$

6) $y = \frac{2}{5}x - \frac{1}{4}$
$m = \frac{2}{5} \quad b = -\frac{1}{4}$

Slope-Intercept Form
y = mx + b

Use the slope and y-intercept to write a linear equation in slope-intercept form.

1) $m = -2 \quad b = 6$
$y = -2x + 6$

2) $m = \frac{3}{7} \quad b = 1$
$y = \frac{3}{7}x + 1$

3) $m = 0 \quad b = -5$
$y = -5$

4) $m = \frac{1}{8} \quad b = 0$
$y = \frac{1}{8}x$

5) $m = 1 \quad b = 6$
$y = x + 6$

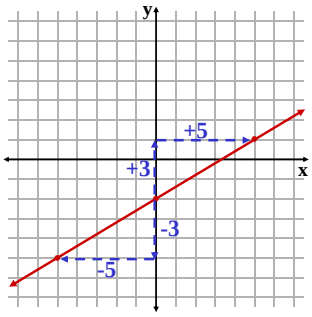
6) $m = -\frac{1}{2} \quad b = 10$
$y = -\frac{1}{2}x + 10$

Graph the equation below using the slope and y-intercept.

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

$m = \frac{3}{5} = \frac{-3}{-5}$

$b = -2$

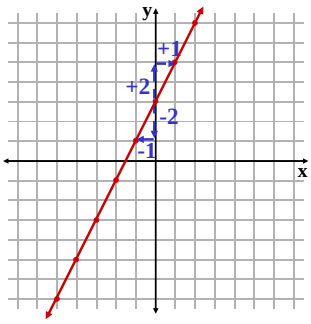


Graph the equation below using the slope and y-intercept.

$y = 2x + 3$

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

$b = 3$



Identify the slope and y-intercept in each equation.

1) $x + 3y = 7$
$-x \qquad -x$
$\frac{3y}{3} = \frac{-x + 7}{3}$
$y = \frac{-x}{3} + \frac{7}{3}$
$y = -\frac{1}{3}x + 2\frac{1}{3}$
$m = -\frac{1}{3} \quad b = 2\frac{1}{3}$

2) $2x - y = 9$
$-2x \qquad -2x$
$\frac{-y}{-1} = \frac{-2x + 9}{-1}$
$y = \frac{-2x}{-1} + \frac{9}{-1}$
$y = 2x - 9$
$m = 2 \quad b = -9$

Lesson 7-7b (cont.)

Identify the slope and y-intercept in each equation.

3) $3x+4y=8$

$-3x \quad -3x$

$\frac{4y}{4}=\frac{-3x+8}{4}$

$y=\frac{-3x}{4}+\frac{8}{4}$

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

$m=-\frac{3}{4} \quad b=2$

4) $-x+5y=10$

$+x \quad +x$

$\frac{5y}{5}=\frac{x+10}{5}$

$y=\frac{x}{5}+\frac{10}{5}$

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

$m=\frac{1}{5} \quad b=2$

Graph the equation using slope and y-intercept.

$5x-2y=6$

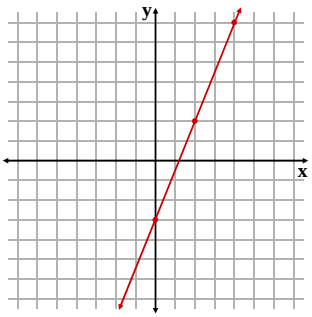
$-5x \quad -5x$

$\frac{-2y}{-2}=\frac{-5x+6}{-2}$

$y=\frac{-5x}{-2}+\frac{6}{-2}$

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

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



Graph the equation using slope and y-intercept.

$4x+3y=9$

$-4x \quad -4x$

$\frac{3y}{3}=\frac{-4x+9}{3}$

$y=\frac{-4x}{3}+\frac{9}{3}$

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

$m=\frac{-4}{3} \quad b=3$