

Graph: $y = 3x + 5$
 $m = \frac{3}{1} \rightarrow$ OR $\frac{-3}{-1} \leftarrow$
 $b = 5$

$-12x + 4y = 8$

$4y = 12x + 8$

$y = \frac{12x + 8}{4}$

$y = \frac{12x}{4} + \frac{8}{4}$

$y = 3x + 2$

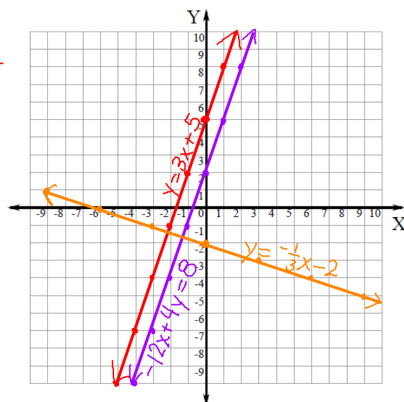
$m = \frac{3}{1} \rightarrow$

$b = 2$

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

$m = -\frac{1}{3} \rightarrow$ OR $\frac{-1}{3} \leftarrow$

$b = -2$



3.3 Parallel and Perpendicular Lines

***Parallel lines have: equal slopes

Also, if 2 lines have equal slopes, then the lines are parallel.

***Perpendicular lines have: negative reciprocal (flip) slopes
 lines form 90° angles

Also, if 2 lines have negative reciprocal slopes, then the lines are perpendicular.

State the slope of a line that is:

a. parallel to the given line

b. perpendicular to the given line

1. $y = -3x + 11$

$m = -3$

$\parallel m = -3$

$\perp m = \frac{1}{3}$

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

$m = \frac{4}{5}$

$\parallel m = \frac{4}{5}$

$\perp m = -\frac{5}{4}$

3. $y = -\frac{1}{6}x + 5$

$m = -\frac{1}{6}$

$\parallel m = -\frac{1}{6}$

$\perp m = 6$

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

$m = \frac{7}{3}$

$\parallel m = \frac{7}{3}$

$\perp m = -\frac{3}{7}$

5. $3x - 5y = 15$

$-5y = -3x + 15$

$y = \frac{-3x + 15}{-5}$

$y = \frac{-3x}{-5} + \frac{15}{-5}$

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

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

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

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

6. $-2x + 9y = 27$

$9y = 2x + 27$

$y = \frac{2x + 27}{9}$

$y = \frac{2x}{9} + \frac{27}{9}$

$y = \frac{2}{9}x + 3$

$m = \frac{2}{9}$

$\parallel m = \frac{2}{9}$

$\perp m = -\frac{9}{2}$

HOMEWORK

Worksheet HW 3.3 Parallel and Perpendicular Lines