

Name _____

A.2.9 Linear Equations of Parallel and Perpendicular Lines

Date _____

1. Are these lines parallel or perpendicular: $6x - 2y = -6$; $x + 3y = 9$

Original Equation	Slope-Intercept Form	Parallel or Perpendicular
$6x - 2y = -6$	$y = 3x + 3$	
$x + 3y = 9$	$y = -\frac{1}{3}x + 3$	Perpendicular

2. Write an equation for a line that is parallel to $y = 4 - x$, and passes through $(1, -3)$

$y = -x - 2$

3. Write an equation for a line that is perpendicular to $y = 2x + 3$, and passes through $(1, -3)$

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

4. What is the y intercept of a line that is perpendicular to $y = \frac{1}{4}x + 3$, and passes through $(4, 4)$?

20

5. What is the slope of every line that is perpendicular to this line?

2



6. Write an equation for a line that is parallel to $4x + 2y = 8$, and passes through $(3, 5)$

$y = -2x + 11$

7. Write an equation for a line that is perpendicular to $4x + 2y = 8$, and passes through $(3, 5)$

$y = \frac{1}{2}x + 3.5$

8. Are these lines parallel or perpendicular?

Original Equation	Slope-Intercept Form	Parallel or Perpendicular
$2x - 4y = 12$	$y = \frac{1}{2}x - 3$	
$-4x - 2y = 6$	$y = -2x - 3$	Perpendicular

9. Find the slope of a line that is perpendicular to a line that passes through the points $(3, 7)$ and $(-2, -3)$.

$-\frac{1}{2}$

10. In the computer model for the architectural design of a garage, two support beams are represented by the lines $y = 2x + 5$ and $y = 2x + 10$. Do these two lines touch? If not, what is the distance between these two lines? (Assume measurements are in feet)

5'

