

Teacher : SOLUTIONS

Date : _____

Parallel and Perpendicular Lines

From the given slopes of the lines, identify whether the two lines are parallel, perpendicular, or neither.

	Slope of Line 1	Slope of Line 2	Answer
1)	$\frac{8}{11}$	$-\frac{11}{8}$	PERPENDICULAR
2)	$\frac{7}{10}$	$\frac{7}{10}$	PARALLEL
3)	$\frac{2}{3}$	$-\frac{2}{3}$	NEITHER
4)	6	$\frac{1}{6}$	NEITHER
5)	6	$\frac{1}{6}$	NEITHER
6)	$\frac{8}{11}$	$-\frac{11}{8}$	PERPENDICULAR
7)	4	4	PARALLEL
8)	11	$-\frac{1}{11}$	PERPENDICULAR
9)	11	$-\frac{1}{11}$	PERPENDICULAR
10)	$\frac{3}{8}$	$\frac{8}{3}$	NEITHER

Teacher : SOLUTIONS Date : _____

Slopes of Parallel and Perpendicular Lines

For the given slope, find the slope of any parallel and perpendicular line to it.

	Slope of a Line	Slope of Any Parallel Line	Slope of Any Perpendicular Line
1)	11	11	$-\frac{1}{11}$
2)	8	8	$-\frac{1}{8}$
3)	$\frac{7}{9}$	$\frac{7}{9}$	$-\frac{9}{7}$
4)	$\frac{6}{11}$	$\frac{6}{11}$	$-\frac{11}{6}$
5)	7	7	$-\frac{1}{7}$
6)	$\frac{3}{8}$	$\frac{3}{8}$	$-\frac{8}{3}$
7)	2	2	$-\frac{1}{2}$
8)	$\frac{8}{11}$	$\frac{8}{11}$	$-\frac{11}{8}$
9)	$\frac{7}{11}$	$\frac{7}{11}$	$-\frac{11}{7}$
10)	10	10	$-\frac{1}{10}$

Teacher : SOLUTIONS

Date : _____

Perpendicular Lines

Find the equation of a line passing through the given point and perpendicular to the given equation.

Write your answer in slope-intercept form. $y = mx + b$ $y - y_1 = m(x - x_1)$

<p>1) (1, 2) and $4x + 3y = 3$ REWRITE</p> $y - y_1 = m(x - x_1) \quad \frac{-4x}{-4x}$ $y - 2 = \frac{3}{4}(x - 1)$ $y - 2 = \frac{3}{4}x - \frac{3}{4}$ $\begin{array}{r} +2 \\ +2 \end{array}$ $y = \frac{3}{4}x + 1\frac{1}{4}$ <p>Answer: $y = \frac{3}{4}x + 1\frac{1}{4}$ $m = \frac{3}{4}$ PERP. SLOPE</p>	<p>5) (2, 1) and $y = -\frac{3}{4}x + 4$</p> $y - 1 = \frac{4}{3}(x - 2)$ PERPENDICULAR SLOPE $y - 1 = \frac{4}{3}x - \frac{8}{3}$ $\begin{array}{r} +1 \\ +1 \end{array}$ $y = \frac{4}{3}x - \frac{5}{3}$ <p>Answer: $y = \frac{4}{3}x - \frac{5}{3}$</p>
<p>2) (0, -1) and $-7x + 2y = 8$ REWRITE</p> $(y - (-1)) = -\frac{2}{7}(x - 0) \quad \frac{+7x}{+7x}$ $y + 1 = -\frac{2}{7}x + 0$ $\begin{array}{r} -1 \\ -1 \end{array}$ $y = -\frac{2}{7}x - 1$ $m = -\frac{2}{7}$ <p>Answer: $y = -\frac{2}{7}x - 1$ PERP. SLOPE</p>	<p>6) (0, 3) and $y = -4x + 4$</p> PERPENDICULAR SLOPE $y - 3 = \frac{1}{4}(x - 0)$ $y - 3 = \frac{1}{4}x - 0$ $\begin{array}{r} +3 \\ +3 \end{array}$ $y = \frac{1}{4}x + 3$ <p>Answer: $y = \frac{1}{4}x + 3$</p>
<p>3) (4, -2) and $2x + 3y = -9$ REWRITE</p> $(y - (-2)) = \frac{3}{2}(x - 4) \quad \frac{-2x}{-2x}$ $y + 2 = \frac{3}{2}x - \frac{12}{2}$ $y + 2 = \frac{3}{2}x - 6$ $\begin{array}{r} -2 \\ -2 \end{array}$ $y = \frac{3}{2}x - 8$ $m = \frac{3}{2}$ <p>Answer: $y = \frac{3}{2}x - 8$ PERP. SLOPE</p>	<p>7) (3, 1) and $-4x + 3y = -6$ REWRITE</p> $y - 1 = -\frac{3}{4}(x - 3) \quad \frac{+4x}{+4x}$ $y - 1 = -\frac{3}{4}x + \frac{9}{4}$ $\begin{array}{r} +1 \\ +1 \end{array}$ $y = -\frac{3}{4}x + \frac{13}{4}$ $m = -\frac{3}{4}$ <p>Answer: $y = -\frac{3}{4}x + 3\frac{1}{4}$ PERPENDICULAR SLOPE</p>
<p>4) (2, 5) and $y = \frac{5}{2}x - 4$</p> PERPENDICULAR SLOPE $y - 5 = -\frac{2}{5}(x - 2)$ $y - 5 = -\frac{2}{5}x + \frac{4}{5}$ $\begin{array}{r} +5 \\ +5 \end{array}$ $y = -\frac{2}{5}x + 5\frac{4}{5}$ <p>Answer: $y = -\frac{2}{5}x + 5\frac{4}{5}$</p>	<p>8) (-3, -2) and $y = -5x - 3$</p> PERPENDICULAR SLOPE $(y - (-2)) = \frac{1}{5}(x - (-3))$ $y + 2 = \frac{1}{5}(x + 3)$ $y + 2 = \frac{1}{5}x + \frac{3}{5}$ $\begin{array}{r} -2 \\ -2 \end{array}$ $y = \frac{1}{5}x - 1\frac{2}{5}$ <p>Answer: $y = \frac{1}{5}x - 1\frac{2}{5}$</p>



