

"Worksheet: When are Lines Parallel or Perpendicular?"

You will now use your Excel spreadsheet that graphs pairs of lines to investigate when lines are parallel or perpendicular.

Part I Graph the following pairs of lines. Find the slope of each line.

1.	$-2x + y = 4$	2.	$1x + 2y = 2$	3.	$-3x + 2y = 8$
	$-2x + y = -2$		$1x + 2y = 4$		$3x - 2y = 4$

4. What do you notice about the graphs in Problems 1 – 3?
What pattern do you see in the slopes of the lines in Problems 1 – 3?
These are examples of lines that are **parallel**.

5. Write two other examples of lines that are parallel. Graph the lines to show that they are parallel.

Part II Graph the following pairs of lines. Find the slope of each line.

6.
$$\begin{aligned} -1x + 2y &= 6 \\ 2x + y &= -1 \end{aligned}$$

7.
$$\begin{aligned} -3x + 2y &= 4 \\ 2x + 3y &= 6 \end{aligned}$$

8.
$$\begin{aligned} -1x + y &= 3 \\ x + y &= -2 \end{aligned}$$

9. What do you notice about the graphs in Problems 6 – 8?
What pattern do you see in the slopes of the lines in Problems 6 – 8?
These are examples of lines that are **perpendicular**.

10. Write two other examples of lines that are perpendicular. Graph the lines to show that they are perpendicular.