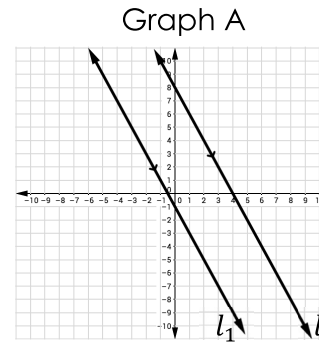
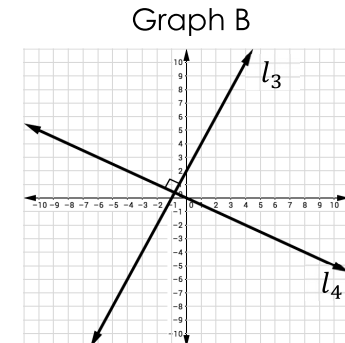


**Section 1 – Topic 7**  
**Parallel and Perpendicular Lines – Part 1**



These lines are \_\_\_\_\_.

The symbol used to indicate **parallel** lines is \_\_\_\_\_.



These lines are \_\_\_\_\_.

The symbol used to indicate **perpendicular** lines is \_\_\_\_\_.

Choose two points on each graph and use the slope formula,  $m = \frac{y_2 - y_1}{x_2 - x_1}$ , to verify your answers.

What do you notice about the slopes of the parallel lines?

What do you notice about the slopes of the perpendicular lines?

What happens if the lines are not shown on a graph, but rather in an equation?



**Let's Practice!**

1. Indicate whether the lines are parallel, perpendicular, or neither. Justify your answer.
  - a.  $y = 2x$  and  $6x = 3y + 5$
  - b.  $2x - 5y = 10$  and  $10x + 4y = 20$
  - c.  $4x + 3y = 63$  and  $12x - 9y = 27$
  - d.  $x = 4$  and  $y = -2$

**Try It!**

2. Match each of the following with the equations below. Write the letter of the appropriate equation in the column beside each item.

<b>A.</b> $x = -5$	<b>B.</b> $y = -\frac{1}{4}x + 1$	<b>C.</b> $3x - 5y = -30$	<b>D.</b> $x - 2y = -2$
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	A line parallel to $y = \frac{3}{5}x + 2$
	A line perpendicular to $y = 4$
	A line perpendicular to $4x + 2y = 12$
	A line parallel to $2x + 8y = 7$



**Section 1 – Topic 8**  
**Parallel and Perpendicular Lines – Part 2**

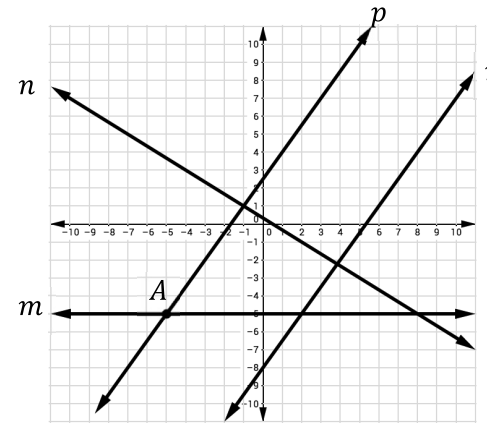
**Let's Practice!**

1. Write the equation of the line passing through  $(-1, 4)$  and perpendicular to  $x + 2y = 11$ .

**Try It!**

2. Suppose the equation for line  $A$  is given by  $y = -\frac{3}{4}x - 2$ . If line  $A$  and line  $B$  are perpendicular and the point  $(-4, 1)$  lies on line  $B$ , then write an equation for line  $B$ .

3. Consider the graph below.



- a. Name a set of lines that are parallel. Justify your answer.
- b. Name a set of lines that are perpendicular. Justify your answer.

**BEAT THE TEST!**

1. The equation for line  $A$  is given by  $y = -\frac{3}{4}x - 2$ . Suppose line  $A$  is parallel to line  $B$ , and line  $T$  is perpendicular to line  $A$ . Point  $(0, 5)$  lies on both line  $B$  and line  $T$ .

*Part A:* Write an equation for line  $B$ .

*Part B:* Write an equation for line  $T$ .

2. A parallelogram is a four-sided figure whose opposite sides are parallel and equal in length. Alex is drawing parallelogram  $ABCD$  on a coordinate plane. The parallelogram has the coordinates  $A(4, 2)$ ,  $B(0, -2)$ , and  $D(8, -1)$ .

Which of the following coordinates should Alex use for point  $C$ ?

- Ⓐ  $(6, -3)$
- Ⓑ  $(4, -5)$
- Ⓒ  $(10, -3)$
- Ⓓ  $(4, 3)$

