Name:	Per:
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Parallel Lines Investigation

During this activity you will be discovering the rule of writing equations of parallel lines!

<u>Directions:</u> Graph the points and use a ruler to draw the line that passes through them. Use a color of your choice for each line. *Tell me what color you used for each line*.

Color:

(-3, 2) and (0, 4)

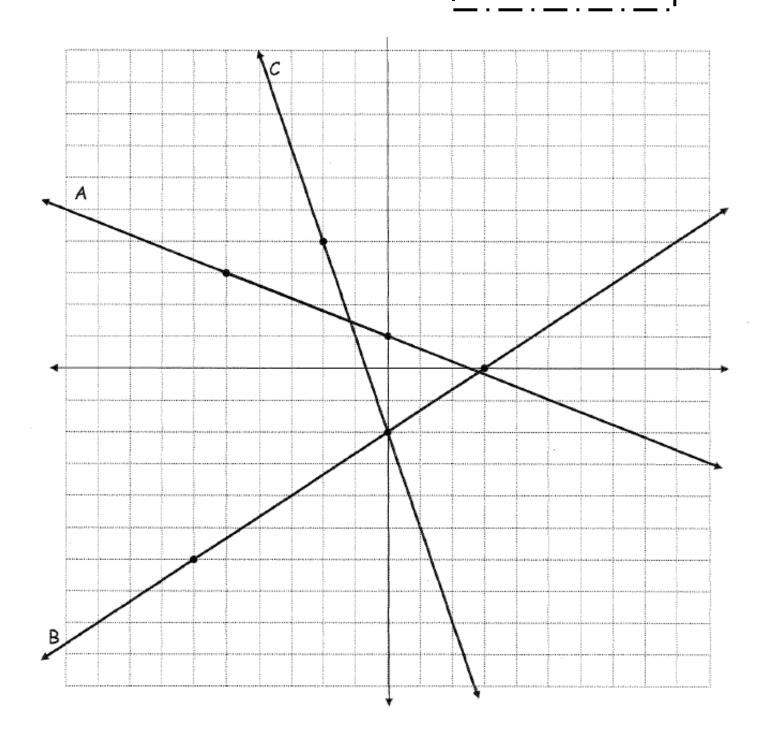
(-5, -1) and (5, -5)

(1, 1) and (2, -2)

Given lines and Their Points A: (0, 1) and (-5, 3)

B: (3, 0) and (-6, -6)

C: (-2, 4) and (0, -2)



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The equation for A is $y = -\frac{2}{5}x + 1$

The equation for B is $y = \frac{2}{3}x - 2$

The equation for C is y = -3x - 2

Directions: Use the points given to write the equation of each colored line in slope-intercept form.

	or:	Color:	Color:
Equ	uation:	Equation:	Equation:

<u>Direction</u>: Use your graph to help answer the following questions.

1. Which colored line is parallel to line A? _____

What are the equations of these two lines?

2. Which colored line is parallel to line B? _____

What are the equations of these two lines?

3. Which colored line is parallel to line C?

What are the equations of these two lines?

<u>Directions:</u> Use the equations of each pair of parallel lines to answer the following questions. List the pairs of parallel lines and their equations.

Line A: _____

Line B: _____

Line C: _____

<u>Color</u>

<u>Color</u>

Color

____:___:____:____

____:___

____:___

- 4. What do you notice about the slopes in each pair of equations?
- 5. What do you notice about the y-intercepts in each pair of equations?
- 6. What is a general statement you can make about the equations of parallel lines in relation to y = mx + b.

Directions: Answer the following questions using the knowledge you gained from your investigation.

- 1. Are y = 3x + 7 and y = 3x 8 parallel to each other? Yes or No
- 2. Are $y = \frac{2}{3}x 2$ and $y = \frac{3}{2}x + 1$ parallel to each other? Yes or No
- 3. Write equations for three lines that are parallel to y = 2x 3.

4. Write equations for three lines that are not parallel to y = -5x - 2.