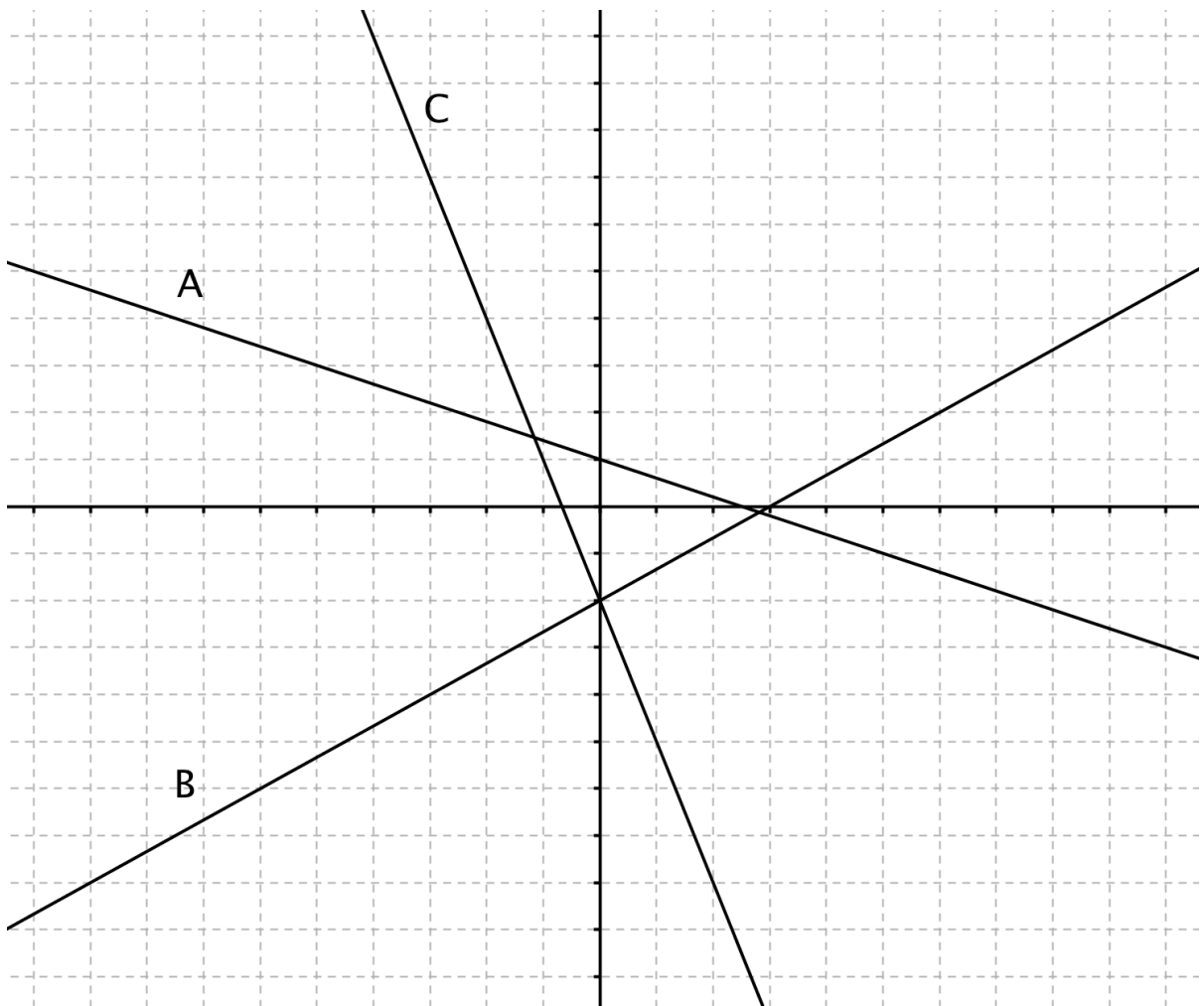Name:_____ Date:_____

Parallel Lines Investigation

Directions: Graph the points on the graph below and use a ruler to draw the line that passes through them. Use the designated color to draw each line.

RED: (-3,2) (0,4)

BLUE: (-5,-1) (5,-5)

GREEN: (1,1) (2,-2)

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

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

The equation of line C is $y = -3x - 2$

Write the equation in the boxes below for the lines you drew.

RED LINE	BLUE LINE	GREEN LINE

Look at the graph, there are three sets of parallel lines. Please list the lines that are parallel and write their respective equations (i.e. if Line A and the RED line were parallel I would list them and then write their equations in one of the boxes below).

SET 1	SET 2	SET 3

Use the equations of each set of parallel lines to answer the following questions.

1. What do you notice about the slopes in each set of equations?

2. What do you notice about the y-intercept in each set of equations?

3. What general statement can you make about the equations of parallel lines?

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? Why?

2. Are $y = \frac{4}{3}x - 5$ and $y = 6 + \frac{3}{4}x$ parallel to each other? Why?

3. Write the equation of three lines that are parallel to $y = \frac{1}{3}x - 1$

4. Write the equation of three lines that are NOT parallel to $y = 6x + 11$
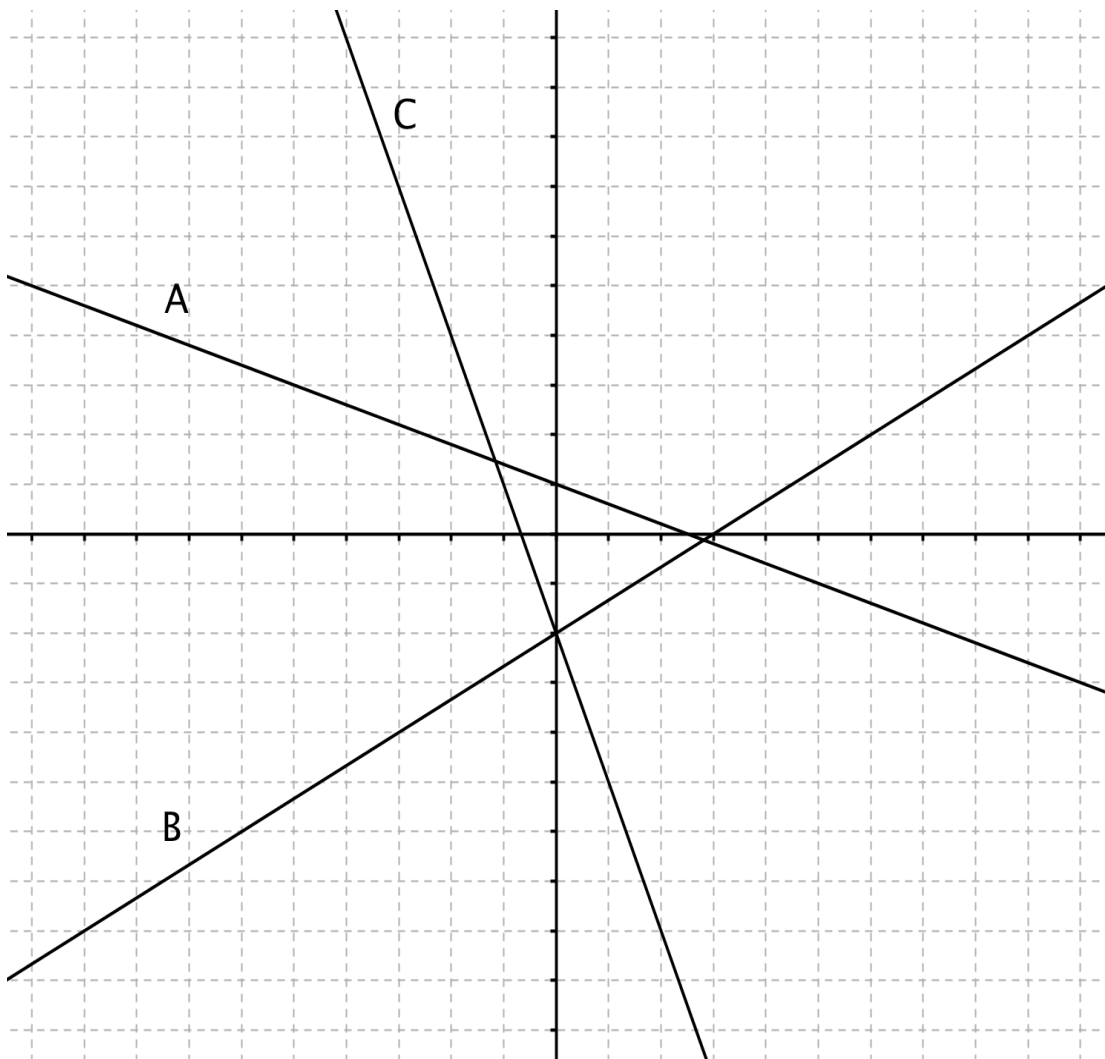
Name:_____ Date:_____

Perpendicular Lines Investigation

Directions: Graph the points on the graph below and use a ruler to draw the line that passes through them. Use the designated color to draw each line.

RED: (0,2) (2,-1)

BLUE: (-3,6) (-6,5)

GREEN: (4,0) (6,5)

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

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

The equation of line C is $y = -3x - 2$

Write the equation in the boxes below for the lines you drew.

RED LINE	BLUE LINE	GREEN LINE

Look at the graph, there are three sets of perpendicular lines. Please list the lines that are perpendicular and write their respective equations (i.e. if Line A and the RED line were perpendicular I would list them and then write their equations in one of the boxes below).

SET 1	SET 2	SET 3

Use the equations of each set of perpendicular lines to answer the following questions.

4. What do you notice about the slopes in each set of equations?

5. What do you notice about the y-intercept in each set of equations?

6. What general statement can you make about the equations of perpendicular lines?

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

5. Are $y = 3x + 7$ and $y = 3x - 8$ perpendicular to each other? Why?

6. Are $y = \frac{4}{3}x - 5$ and $y = 6 - \frac{3}{4}x$ perpendicular to each other? Why?

7. Write the equation of three lines that are perpendicular to $y = \frac{1}{3}x - 1$

8. Write the equation of three lines that are NOT perpendicular to $y = 6x + 11$