Name：
Per： $\qquad$

## Parallel Lines Investigation

During this activity you will be discovering the rule of writing equations of parallel lines！
Directions：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 $(0,4)$
Given lines and Their Points ${ }^{\prime}$
$(-5,-1)$ and $(5,-5)$
A：$(0,1)$ and $(-5,3)$
B：$(3,0)$ and $(-6,-6)$
$(1,1)$ and $(2,-2)$
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 $y=-3 x-2$

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


Direction: Use your graph to help answer the following questions.

1. Which colored line is parallel to line A? $\qquad$
What are the equations of these two lines?
2. Which colored line is parallel to line B? $\qquad$
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?
$\qquad$ Per: $\qquad$
Directions: 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: $\qquad$
Color
$\qquad$

Line B: $\qquad$
Color
$\qquad$ :

Line C: $\qquad$

## 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 $y=m x+b$.

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

1. Are $y=3 x+7$ and $y=3 x-8$ 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 $y=2 x-3$.
4. Write equations for three lines that are not parallel to $y=-5 x-2$.
