

You will need a ruler and 4 different-colored pencils to complete this activity.

For each set of equations:

- complete a table of values for each equation;
- graph each line on the grid provided;
- identify each line by completing a color legend; and
- answer the questions based on your results.

1. a.  $y = 1x$

x	y
-1	
0	
1	

color

b.  $y = 2x$

x	y
-1	
0	
1	

color

c.  $y = 3x$

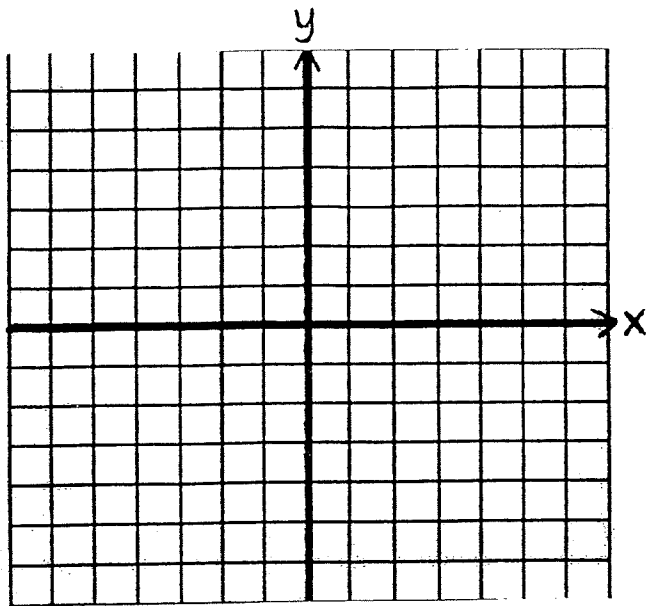
x	y
-1	
0	
1	

color

d.  $y = 4x$

x	y
-1	
0	
1	

color



If each equation is in the form  $y = mx$ ,  
 what does the  $m$  represent for each line?

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What happens as the value of  $m$  increases?

\_\_\_\_\_

All of the lines have which point in common?

\_\_\_\_\_

2. Based on your above results, what are the slopes of the following lines?

a.  $y = 6x$

\_\_\_\_\_

b.  $y = -2x$

\_\_\_\_\_

c.  $y = \frac{1}{2}x$

\_\_\_\_\_

d.  $y = -8x$

\_\_\_\_\_

e.  $y = -\frac{3}{4}x$

\_\_\_\_\_

3. Which point do you think all of the lines in #1 and #2 will have in common? \_\_\_\_\_

4. a.  $y = 3x - 3$       b.  $y = 3x - 1$       c.  $y = 3x + 1$       d.  $y = 3x + 3$

x	y
-1	
0	
1	

color

x	y
-1	
0	
1	

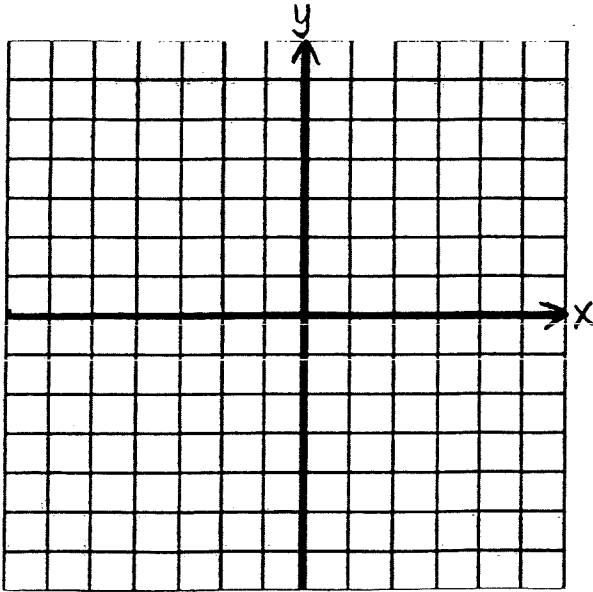
color

x	y
-1	
0	
1	

color

x	y
-1	
0	
1	

color



If each equation is in the form  $y = mx + b$ , what does the  $m$  represent for each line?

\_\_\_\_\_

If each equation is in the form  $y = mx + b$ , what does the  $b$  represent for each line?

\_\_\_\_\_

What do all these lines have in common?

\_\_\_\_\_

5. Based on your above results, what are the **slopes** of the following lines?

- a.  $y = 6x - 2$       b.  $y = -2x + 3$       c.  $y = \frac{1}{2}x - 9$       d.  $y = -8x - 3$

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

6. Where will these lines **cross the y-axis**?

- a.  $y = 6x - 2$       b.  $y = -2x + 3$       c.  $y = \frac{1}{2}x - 9$       d.  $y = -8x - 3$

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\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

7. a. What is another **name** for the point where a graph crosses the y-axis?

\_\_\_\_\_

b. What is the **ordered pair** of that point using the equation  $y = mx + b$ ?  $(0, \quad)$