

# Draw - by - Line Segments Project

**Objective:** to create a picture on a coordinate plane and find the equations of the lines in the picture.

## Directions:

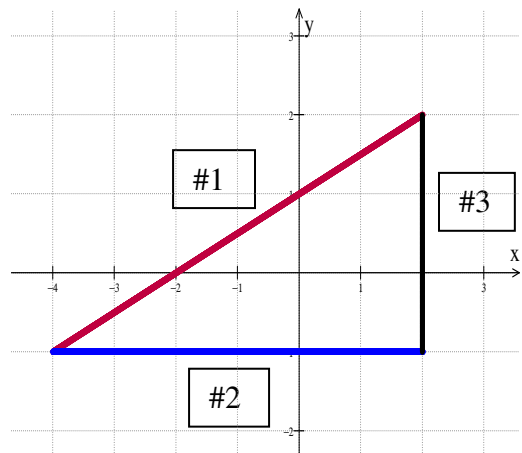
1. On the coordinate plane, draw a picture. The picture can have curved lines, but it must have at least 9 non vertical or horizontal lines, 3 horizontal lines and 3 vertical lines. Label the straight lines with the #'s 1 to 15.
2. Using all of your knowledge of writing the equation of a line, find the equation of the 15 lines in your picture on the sheet provided. (Hint: write the ordered pairs of two points on the line, find the slope, and then plug a point and the slope into the slope intercept form of the equation)
3. Label each equation with the number of the line in your picture. The idea is that another person could recreate your picture using the equations. In order to do this, you must include the domain and the range of each line. (Otherwise, the line will extend in both directions forever!)

Example:

Line #1  $y = \frac{1}{2}x + 1$   $D = \{-4 \leq x \leq 2\}$   
 $R = \{-1 \leq y \leq 2\}$

Line #2  $y = -1$   $D = \{-4 \leq x \leq 2\}$   
 $R = \{-1\}$

Line #3  $x = 2$   $D = \{2\}$   
 $R = \{-1 \leq y \leq 2\}$

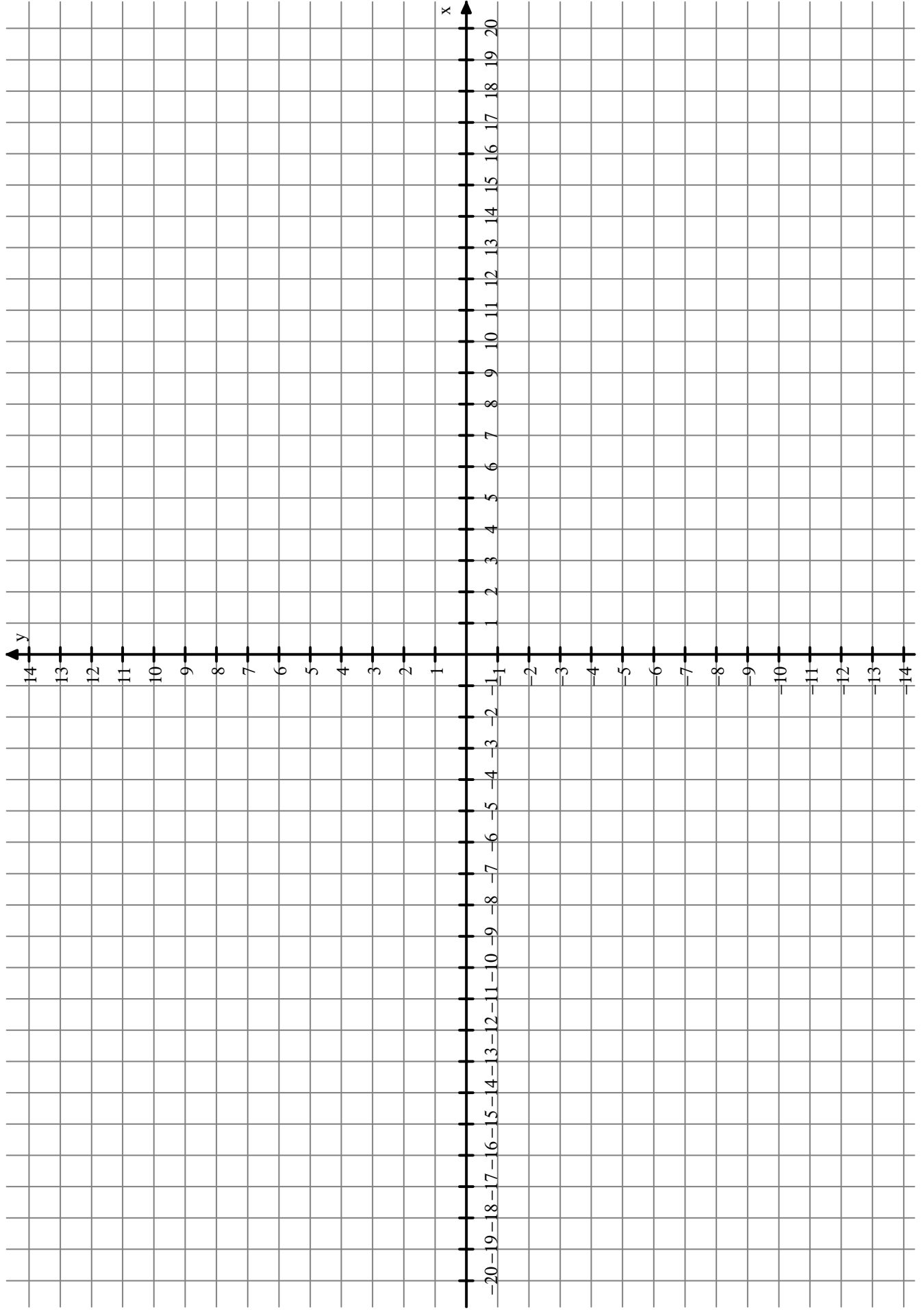


4. Color the picture then staple the work that shows the equation of the 15 lines and the drawing with the colored drawing on top.

Draw by Line Project

Name \_\_\_\_\_

Period \_\_\_\_\_



Name \_\_\_\_\_

Period \_\_\_\_\_

## 9 Non Vertical or Horizontal Lines (Must Show WORK)

#	$(x_1, y_1)$	$(x_2, y_2)$	Slope = m	Y intercept = b (Must Show WORK)	Equation of the line $Y = mx + b$
1					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$
2					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$
3					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$
4					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$
5					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$
6					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$
7					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$
8					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$
9					$Y = \underline{\hspace{2cm}}$ $D = \{ \underline{\hspace{1cm}} \leq x \leq \underline{\hspace{1cm}} \}$ $R = \{ \underline{\hspace{1cm}} \leq y \leq \underline{\hspace{1cm}} \}$

### 3 Horizontal Lines

Line #	$(x_1, y_1)$	$(x_2, y_2)$	Slope = m	Equation of the line ( $y = b$ )	Domain	Range
10			0		$D = \{ \_ \leq x \leq \_ \}$	$R = \{ \_ \}$
11			0		$D = \{ \_ \leq x \leq \_ \}$	$R = \{ \_ \}$
12			0		$D = \{ \_ \leq x \leq \_ \}$	$R = \{ \_ \}$

### 3 Vertical Lines

Line #	$(x_1, y_1)$	$(x_2, y_2)$	Slope = m	Equation of the line ( $x = a$ )	Domain	Range
13			undefined		$D = \{ \_ \}$	$R = \{ \_ \leq y \leq \_ \}$
14			undefined		$D = \{ \_ \}$	$R = \{ \_ \leq y \leq \_ \}$
15			undefined		$D = \{ \_ \}$	$R = \{ \_ \leq y \leq \_ \}$