

**Course: Geometry**  
**Unit: Lines and the Coordinate Plane**  
**Section: Graphing the Equation of a Line**

**Tutorial: Graphing Lines on the Coordinate Plane**

**Slide 1:**

In this tutorial we will cover how to graph a line on the coordinate plane given the equation of that line.

**Slide 2:**

In order to draw the graph of line given its equation, use the following steps:

Step 1. Choose a value for  $x$  and replace it in the given equation. Solve the result for  $y$ . Pairing these coordinates provides us with the coordinates of a point on the line.

Step 2. Choose another arbitrary value for  $x$  and replace it in the equation. Solve the result for  $y$ . Again, pairing these coordinates gives us another point on the line.

Step 3. Plot the points found in the previous steps, then draw a line through. This line is the exact representation of the given equation.

**Slide 3:**

For example, graph the line  $y$  equals four  $x$  minus six.

**Slide 4:**

We need to find two points on the line.  
Plug in any value for  $x$  and solve for  $y$ .  
Let's plug in  $x$  equals two.  
So,  $y$  equals four times two minus six.  
Simplifying the equation, we see that  $y = 2$   
So, two, two is a point on the graph.  
We repeat the process to find another point.  
Suppose  $x$  equals one.  
Then  $y$  equals four times one minus six  
Simplifying, we see that  $y$  equals negative two.  
So one, negative two is a point on the graph.  
Finally, connect the dots.

**Slide 5:**

Now it's your turn. Plug the given values of  $x$  into each equation to determine two points on the line.

1. If  $y$  equals  $2x$  minus 5, find two points on the line where  $x$  equals 0 and  $x$  equals 1.

**Solution:** (0, -5) and (1, -3)

2. If  $y$  equals  $x$  plus 2, find two points on the line where  $x$  equals negative 1 and  $x$  equals 1.

**Solution:** (negative 1, 1) and (1, 3)