FPC - 10

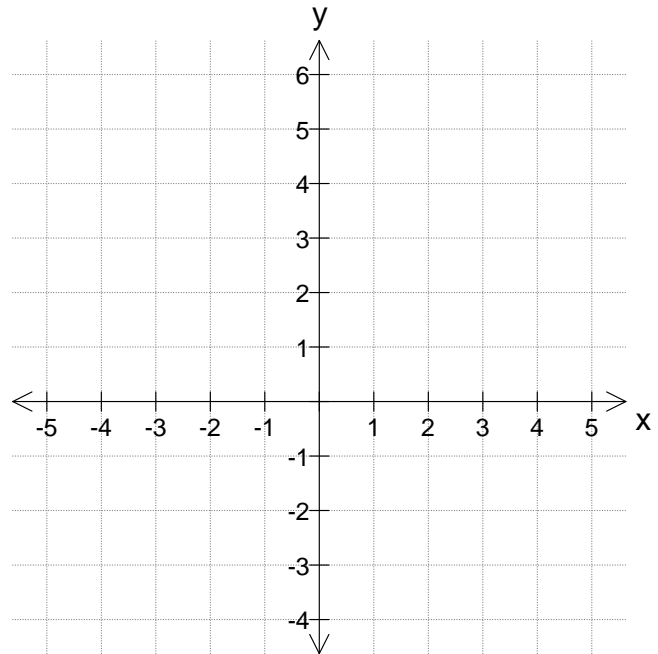## 5.2 - *Equation of a Line: Slope and y-intercept Form*

The *y-intercept* of a line is defined as the   _____

_____

Graph the following equations and use the graph to determine the *slope* and the *y-intercept* of each line.

1. **Equation:** $y = x + 2$

T.O.V.

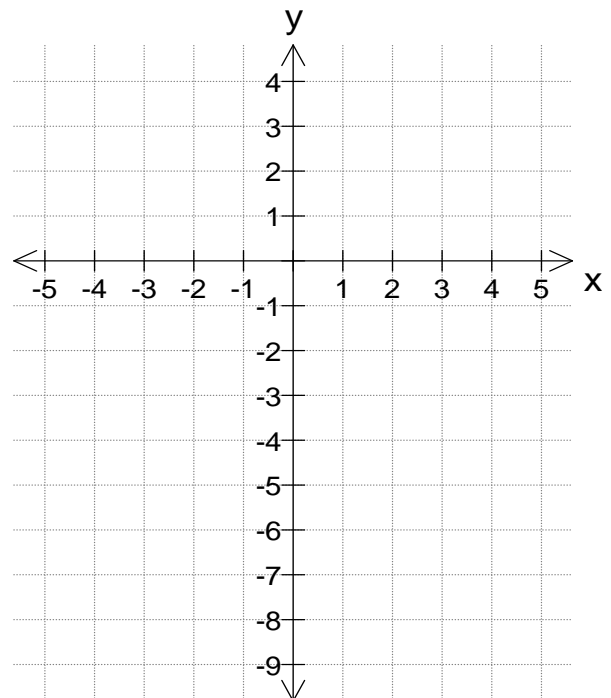| x	y
-3	
-1	
0	
1	
3	

y-intercept _____   *slope* _____

2. **Equation:** $y = 2x - 2$

T.O.V.

x	y
-3	
-1	
0	
1	
3	

y-intercept _____   *slope* _____

3. **Equation:** $y = -3x$

T.O.V.

x	y
-3	
-1	
0	
1	
3	
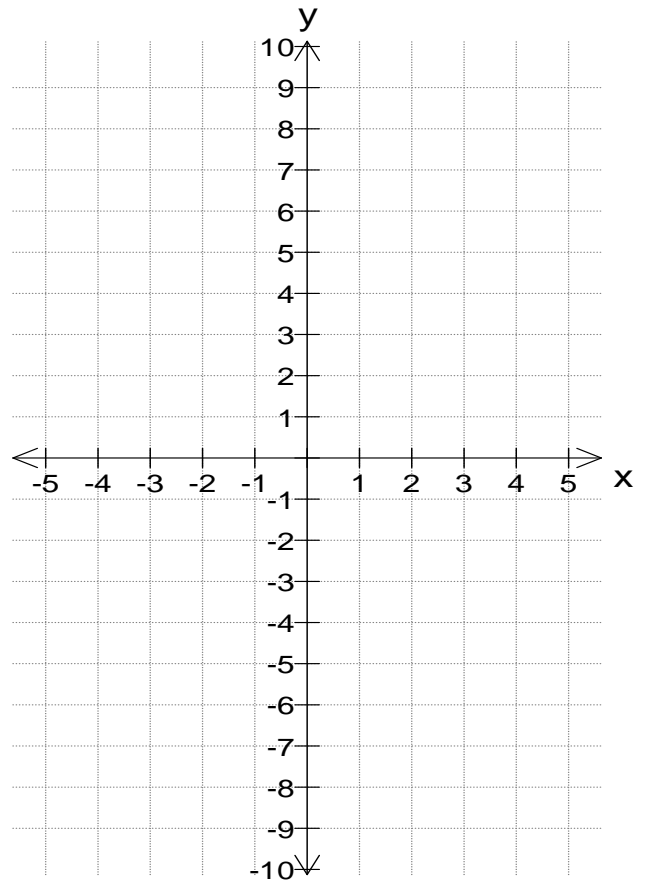
y-intercept _____   *slope* _____

Equation   **Slope**   **y-intercept**

$y = x + 2$

$y = 2x - 2$

$y = -3x$

$y = mx + b$

Complete the following table:

Slope, *m*	*y*-int, *b*	Equation
3	4	
-6	8	
-12	-10	
$\dfrac{1}{2}$	-7	
$-\dfrac{3}{5}$	$\dfrac{1}{2}$	
		$y = \dfrac{5}{7}x - 2$
		$y = \dfrac{-3x}{7} - \dfrac{1}{2}$

The equation of any straight line graph can be written as:

Examples

1. Find the **SLOPE** and **Y-INTERCEPT** of the following lines:
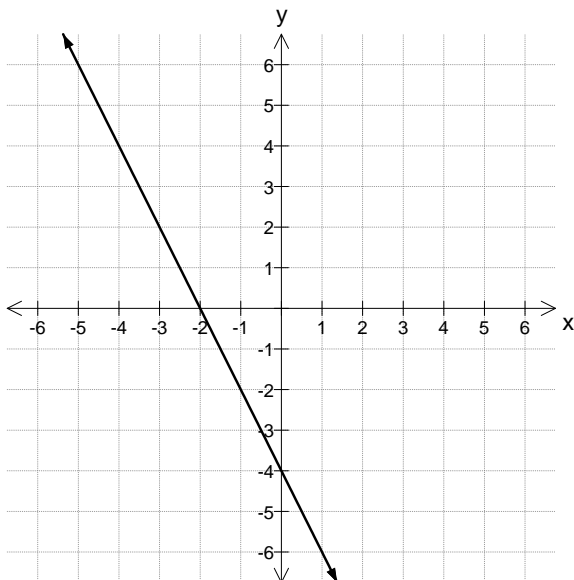
a) $2x - 3y - 6 = 0$

b) $5x + 2y = 10$

c) $12x - 3y = 15$

To find the equation of a straight line in *Slope and y-intercept form*, you need to know 2 things:

Slope, *m*	*y*-intercept, *b*

2. Find the equation of the graph, in **Slope and y-intercept form**.

3. Find equation of the line with slope -7 and a *y*-intercept of -3.

4. Find the equation of the line with slope $-\dfrac{3}{5}$ and passing through the point $(0, -6)$.

5. Find the equation of the line that passes through the points $(2, -2)$ and $(-5, 5)$, and has *y*-intercept of 0.

6. a) Find the equation of the line passing through the points $(-7, -6)$ and $(0, -2)$.

   b) If the point $(k, 0)$ is also on the line, find the value of *k*.

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