

4.2: Graph Linear Equations

“I WILL

...Graph Linear Equations in a Coordinate Plane.”

I. Linear Equations in Two Variables

- A. Standard Form: _____
- B. ____, ____, and ____ are whole numbers and ____ and ____ both cannot be zero.
- C. For it to be linear, the x has to be raised to the 1st power (exponent)

II. Graphing using a Table

- A. **Plug in** at least three x 's to obtain the y 's
 - 1. One positive x -coordinate
 - 2. Zero-coordinate
 - 3. One negative x -coordinate
- B. Connect the lines
- C. Check
- D. If it $y = \text{constant number}$, the line is horizontal
- E. If it $x = \text{constant number}$, the line is vertical

III. Identifying from a Table

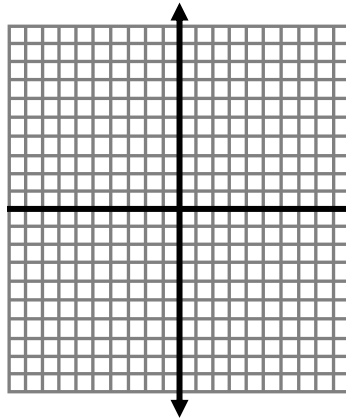
- A. Take the difference from the top to the bottom from the x and y 's
- B. Do it for all of the points
- C. If it is consistent, it is **LINEAR**. If it not consistent, then it **NOT LINEAR**.

IV. Model Problems

Is it Linear?	Ex 1: Is it table linear?	Ex 2: Is it table linear?	Y. Turn: Is this table linear?																																				
1) $x - 1.5y = -1.6$	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>-2</td><td>-7</td></tr> <tr><td>-1</td><td>-5</td></tr> <tr><td>0</td><td>-3</td></tr> <tr><td>1</td><td>-1</td></tr> <tr><td>2</td><td>1</td></tr> </tbody> </table>	x	y	-2	-7	-1	-5	0	-3	1	-1	2	1	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>0</td><td>3</td></tr> <tr><td>2</td><td>1</td></tr> <tr><td>4</td><td>0</td></tr> <tr><td>6</td><td>-1</td></tr> <tr><td>8</td><td>-2</td></tr> </tbody> </table>	x	y	0	3	2	1	4	0	6	-1	8	-2	<table border="1"> <thead> <tr> <th>x</th> <th>y</th> </tr> </thead> <tbody> <tr><td>-3</td><td>-11</td></tr> <tr><td>1</td><td>1</td></tr> <tr><td>5</td><td>13</td></tr> <tr><td>9</td><td>24</td></tr> <tr><td>13</td><td>37</td></tr> </tbody> </table>	x	y	-3	-11	1	1	5	13	9	24	13	37
x	y																																						
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2) $y = -2x$																																							
3) $x + y^2 = 9$																																							
4) $x = 5$																																							

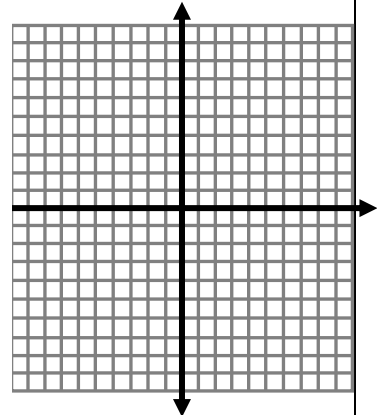
Ex 1: Graph the linear equation, $2x + y = 5$

x		y
-1		
0		
1		



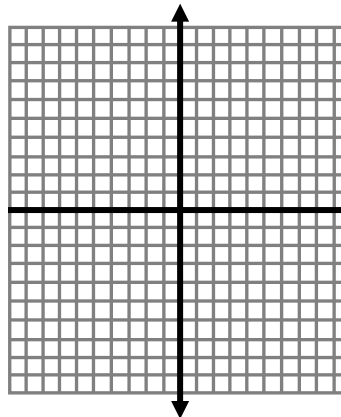
Ex 2: Graph the linear equation, $-2x + 4y = 8$

x		y
-2		
0		
2		



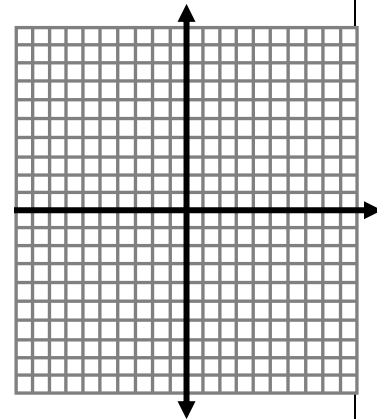
Your Turn: Graph the linear equation, $-2x + y = -3$

x		y
-2		
0		
2		



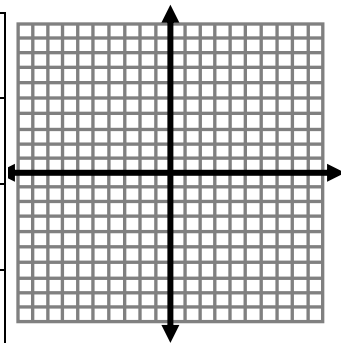
Ex 3: Graph the linear equation, $y = 3x$

x		y
-1		
0		
2		



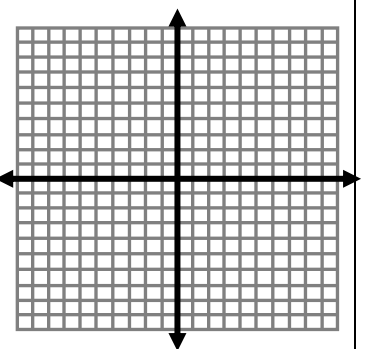
Your Turn: Graph the linear equation, $y = -\frac{1}{3}x + 2$

x		y
-3		
0		
6		



Ex 4: Graph the linear equation, $y = 2$

x		y
-2		
0		
2		



Your Turn: Graph the linear equation, $x = 2$

x		y
		-3
		0
		3

