## 4.2: Graph Linear Equations by Making a Table

**Goals:** *Understand what a linear equation is and be able to identify solutions
*Use a table to graph a linear equation
*Graph horizontal and vertical lines
*Choose appropriate $x$ values
*Identify domain and range of a linear equation

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**Linear equation:**

**Solution:**

**1)**

**2)**

**THIS MEANS:**

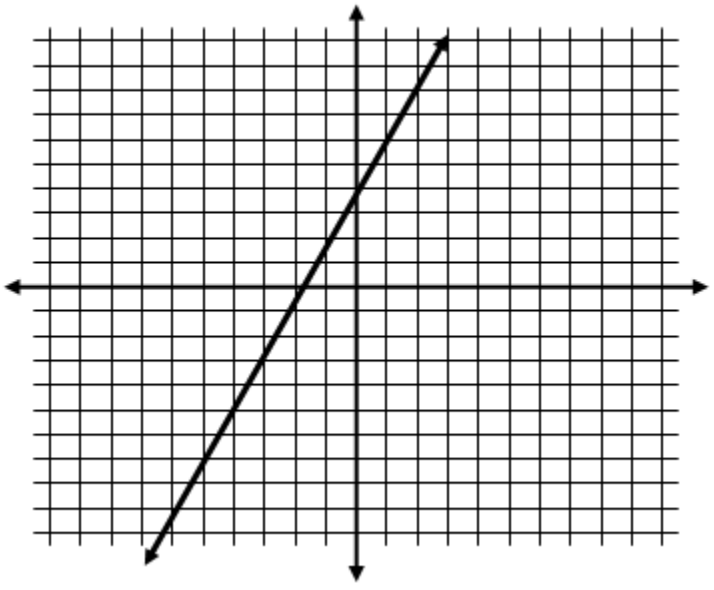
**Ex:** Which ordered pair is a solution to: $3x - y = 7$; (3, 4) or (1, –4)? Explain

**Ex:** Tell whether $(4, -1)$ is a solution to: $x + 2y = 5$. Why or why not.

**Ex:** Are the following points solutions to the linear equation represented by the line graphed?

a) (1, 6)

b) (–3, 2)



**Graph a linear equation by making a table:**

****MAKE SURE EQUATION IS IN _____ FORM!**

**1.** Rewrite the equation so it is in function form, which means to isolate _____

**Ex:** $-2x + y = -3$

| *x* | | *y* |
|---|---|---|
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| | | |

**2.** Choose 5 appropriate values for *x*. Typically these values are:

____, _____, _____, _____, _____

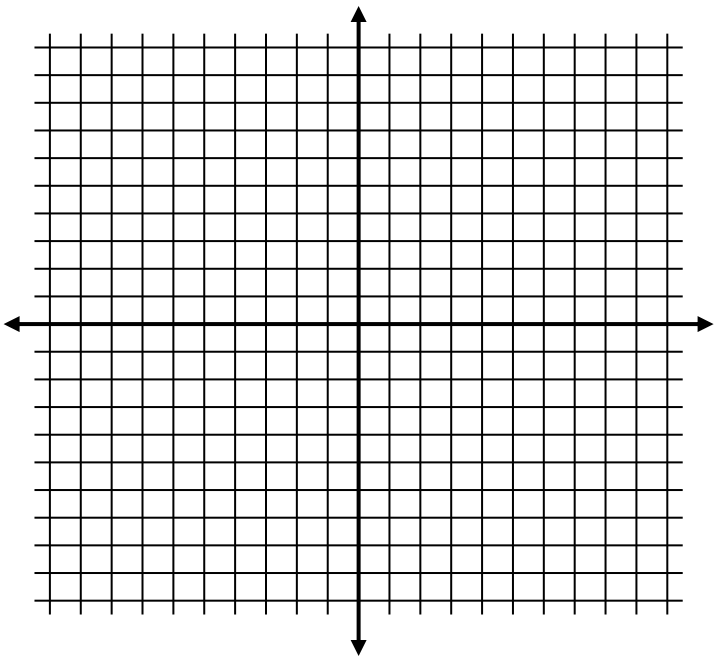
***You should <u>not</u> choose these five values in two cases:**

**1.**

**2.**

**3.** Plug your 5 values into the function for *x*, find out what *y* is for each to complete your table.

**4.** Graph the ordered pairs you now have from your table.



**Ex:** Graph $y = 2 - 2x$

| $x$ | | $y$ |
|---|---|---|
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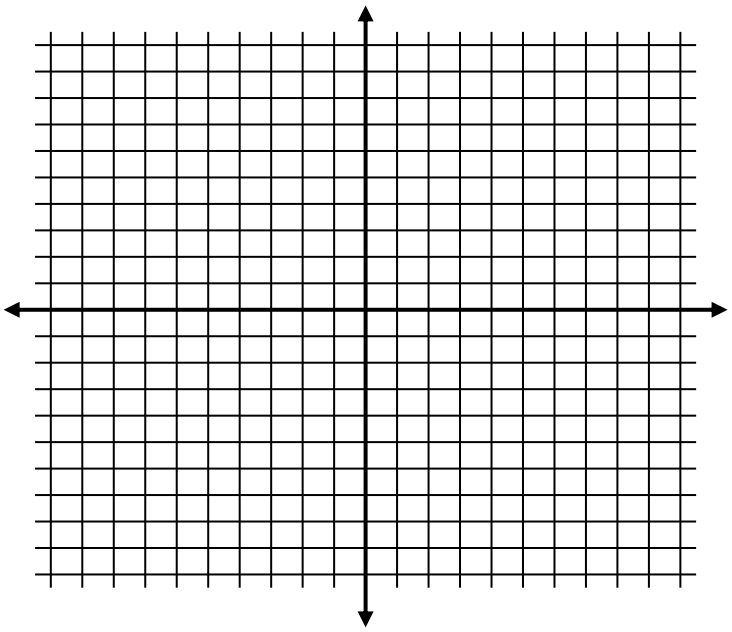

**Ex:** Graph $y = 2 - 3x$

| $x$ | | $y$ |
|---|---|---|
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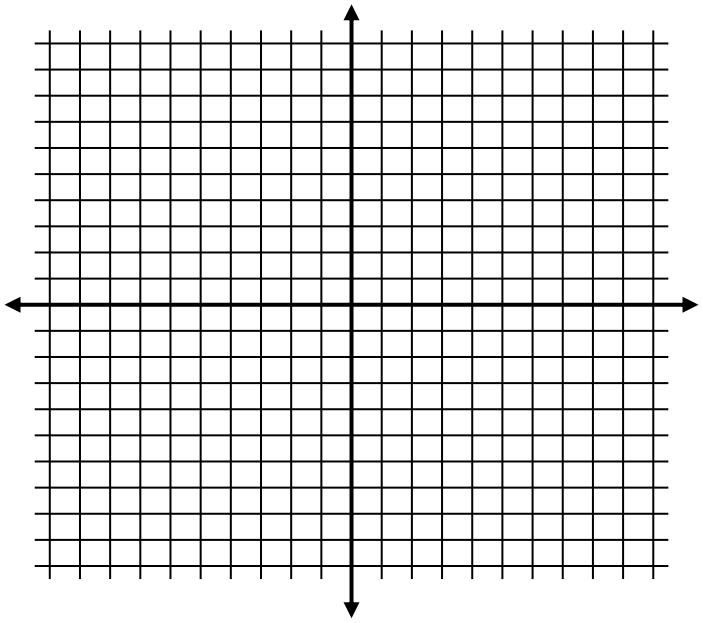
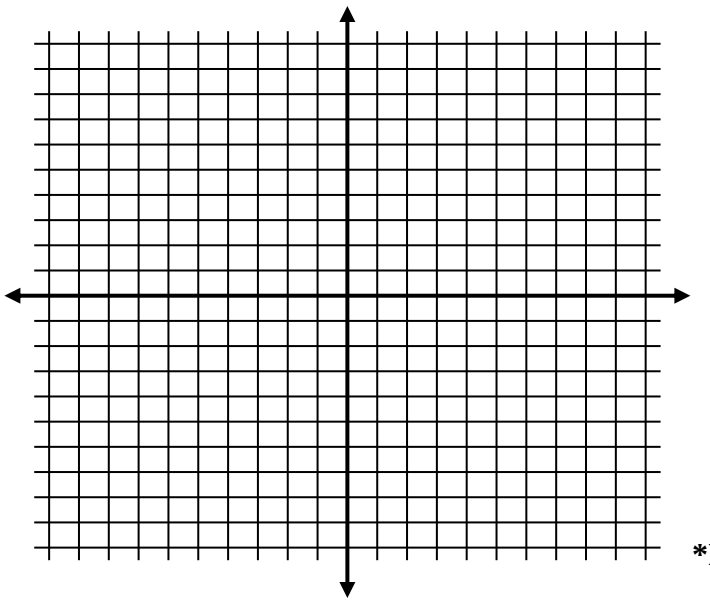


**Ex:** Graph $y = -3x + 1$ with a domain of $x \geq 0$

*which values can you **not** choose for $x$? Why?



| $x$ | | $y$ |
|---|---|---|
| | | |
| | | |
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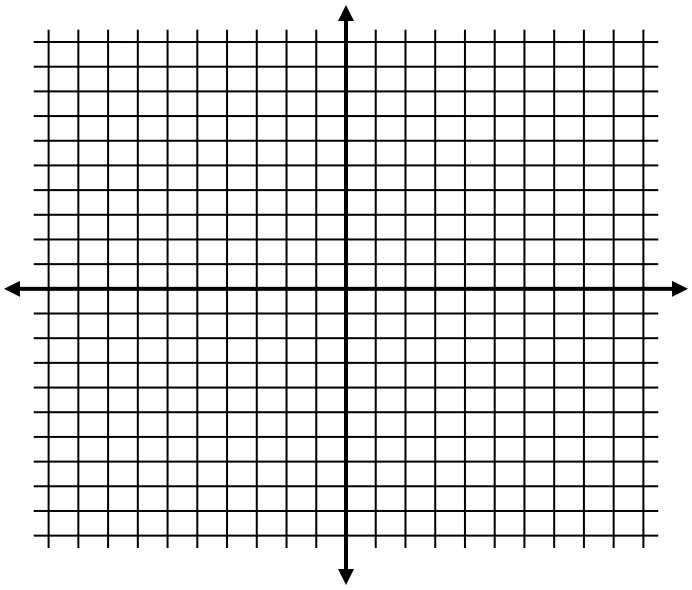
***Identify the range:_____**

**Ex:** Graph $y = \frac{1}{2}x + 4$ **which values should you pick for *x*? Why?



| *x* | | *y* |
|---|---|---|
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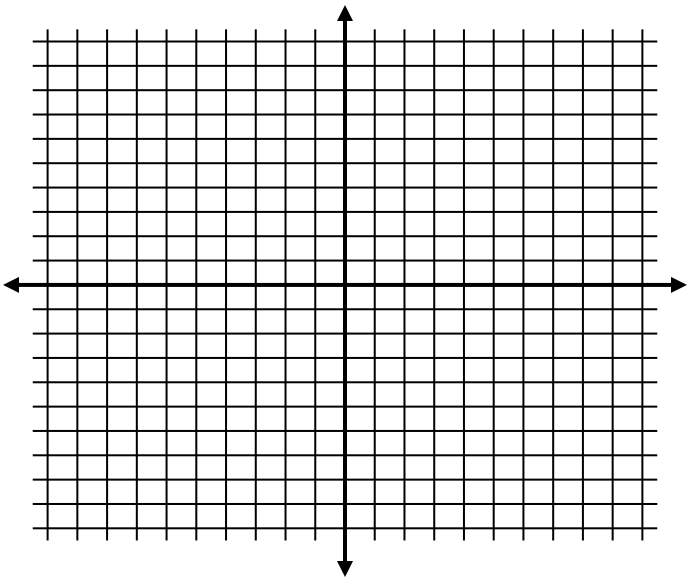
**Ex:** Graph $y = \frac{2}{3}x - 1$ with a domain of $x \leq 0$ then identify the range.



| *x* | | *y* |
|---|---|---|
| | | |
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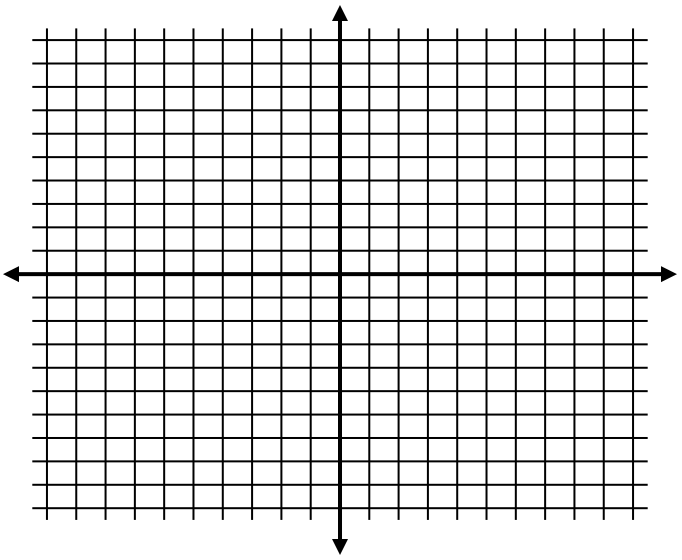
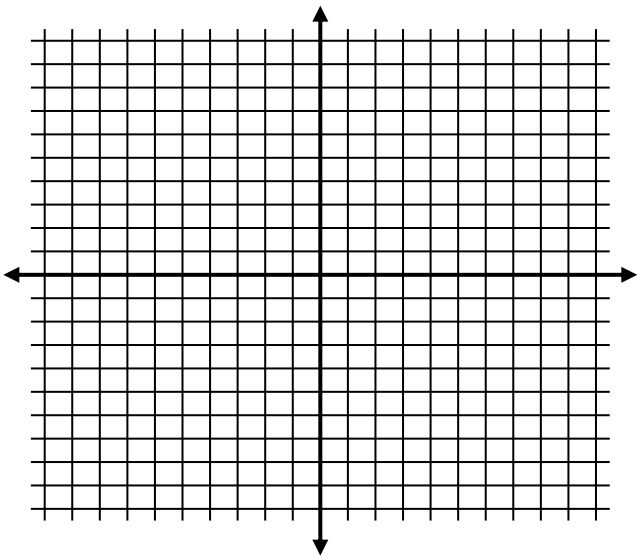
**Ex:** Graph $y = -3$

| | | | | | |
|---|---|---|---|---|---|
| ***x*** | | | | | |
| ***y*** | | | | | |



**Ex:** Graph $x = 4$

| | | | | | |
|---|---|---|---|---|---|
| ***x*** | | | | | |
| ***y*** | | | | | |



**Ex:** The distance, $d$, in miles, that a runner travels is given by the function $d = 6t$ where $t$ is the time (in hours) spent running. The runner plans to go for a 1.5 hour run. Set up a table and identify the domain and range of the function. Choose at least 4 values for $t$.

| ***t*** | | ***d*** |
|---|---|---|
| | | |
| | | |
| | | |
| | | |

Domain: _____

Range: _____

**Ex:** Suppose the same runner decides he wants to run 12 miles. Set up a new table with at least 3 values and identify the new domain and range.

| ***t*** | | ***d*** |
|---|---|---|
| | | |
| | | |
| | | |

Domain: _____

Range: _____

**Ex:** For gas that costs \$2 per gallon, the equation $C = 2g$ gives the cost, $C$, in dollars for $g$ gallons of gas. You plan to pump \$10 worth of gas. Set up a table and identify the domain and range.

| ***g*** | | ***C*** |
|---|---|---|
| | | |
| | | |
| | | |
| | | |
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| | | |

Domain: _____

Range: _____