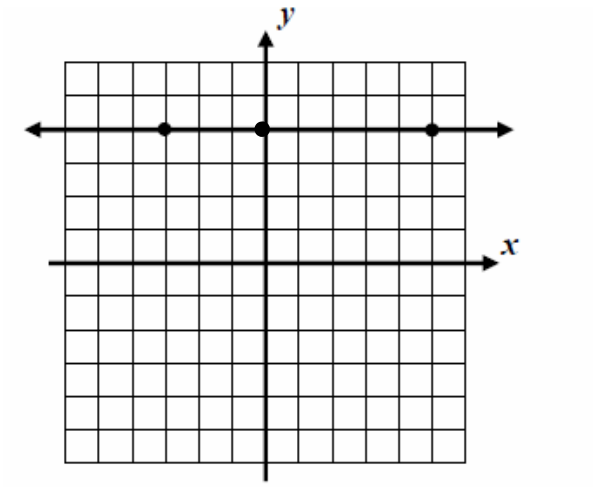
**Essential Question:** How can we identify the equations of horizontal lines?

**Do Now:** Pictured below is the graph of a **horizontal line.**




a) Name three points on the line.

( , ) ( , ) ( , )

b) What do these three points have in common?

# Graphing Horizontal Lines

**Example 1:**

Consider: $0x + y = 2$

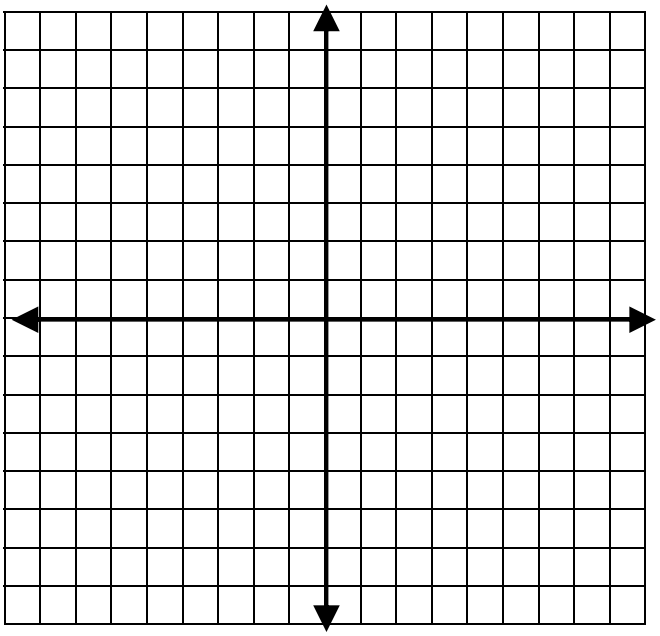
Equation: _____

The equation of a horizontal line is ***y = b***, where ***b*** is any real number.

The *y*-value for the points that make up this equation is always ***b*** regardless of the *x*-value.

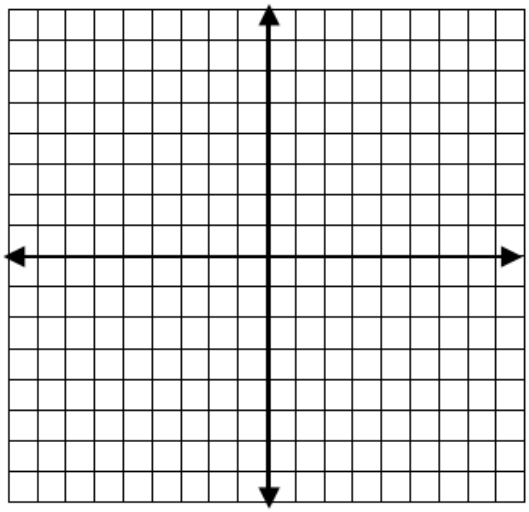
Graph ***y = 2***

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

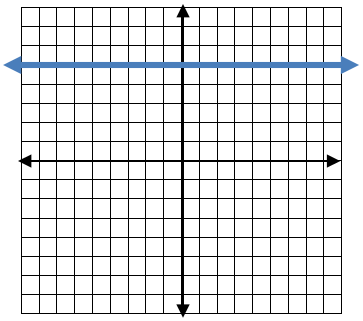


**Domain:** _____ **Range:** _____

**Example 2:** On the graph below, graph the linear equations y = 4 and y = -3.



**For each of the following, write the equation of the lines shown.**



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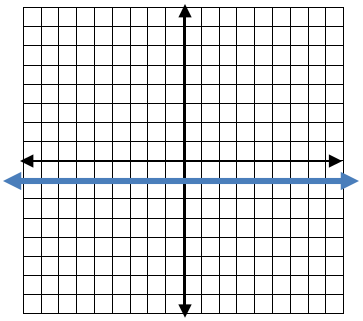

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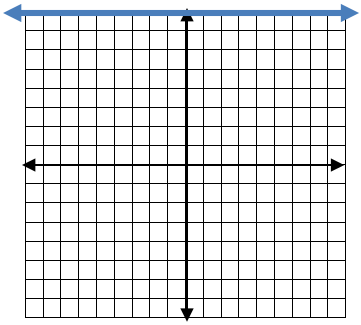

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## Let's review what we have learned up until this point.

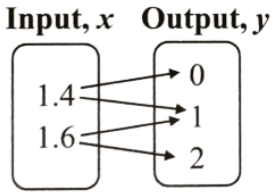
**Determine if each relation is a function. Justify your response by *explaining* your reasoning.**

1. (1, -7), (1, -5), (2, -4), (3, -1), (4, 1)

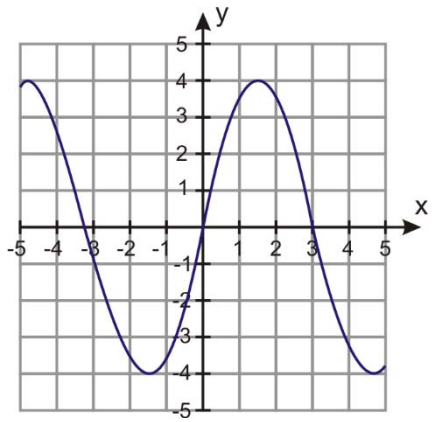
2.

| Input | Output |
|---|---|
| 6 | -9 |
| 7 | -9 |
| 8 | -9 |

3.




4.




5. Let ***x*** represent the number of each month (For example ***x*** = 1 for January).
Let ***y*** represent the number of days in month ***x***. *Do not consider a leap year*.

a. Complete the table.

January February

| **Input, x** | 1 | 2 | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Output, y** | 31 | 28 | | | | | | | | | | |

b. Does the relation represent a function? Explain.

c. If you switch the inputs and outputs of this relation, is the resulting relation a function? Explain.

6. Graph the following linear functions by creating a table of values. *Check all graphs with your calculator*.

a. $y = -2.5x - 1$

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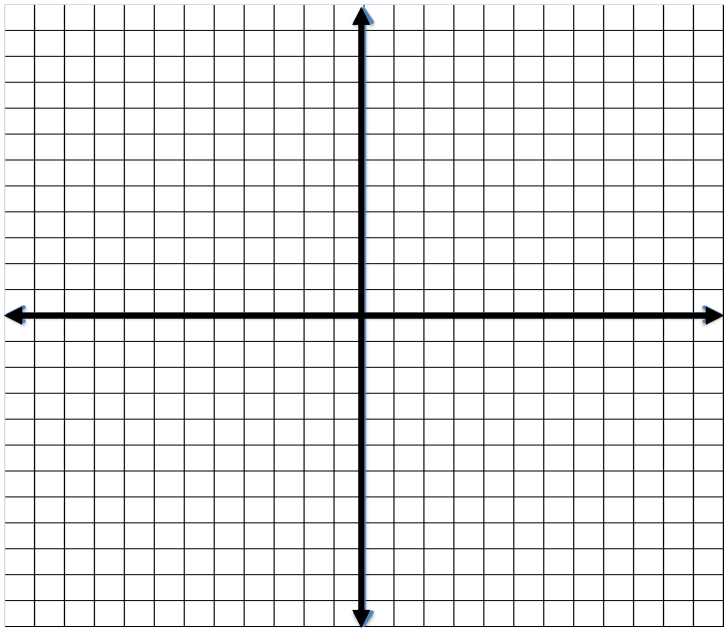

b. $-5x + 5y = 25$

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