Algebra I Lesson #1 Unit 7
Class Worksheet #1
For Worksheets #1 - #5

Algebra I Unit 7 The Equation of a Line

Algebra I Unit 7 The Equation of a Line

There are three types of lines to consider.

Algebra I Unit 7 The Equation of a Line

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Horizontal

Algebra I Unit 7 The Equation of a Line

There are three types of lines to consider.

Horizontal → **The x-axis or any line parallel to the x-axis is a horizontal line.**

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Vertical

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There are three types of lines to consider.

Horizontal → **The x-axis or any line parallel to the x-axis is a horizontal line.**

Vertical → **The y-axis or any line parallel to the y-axis is a vertical line.**

Algebra I Unit 7 The Equation of a Line

There are three types of lines to consider.

Horizontal → **The x-axis or any line parallel to the x-axis is a horizontal line.**

Vertical → **The y-axis or any line parallel to the y-axis is a vertical line.**

Oblique

Algebra I Unit 7 The Equation of a Line

There are three types of lines to consider.

Horizontal → **The x-axis or any line parallel to the x-axis is a horizontal line.**

Vertical → **The y-axis or any line parallel to the y-axis is a vertical line.**

Oblique → **Any line that is neither horizontal nor vertical is an oblique line.**

Algebra I Unit 7 The Equation of a Line

There are three types of lines to consider.

Horizontal → **The x-axis or any line parallel to the x-axis is a horizontal line.**

Vertical → **The y-axis or any line parallel to the y-axis is a vertical line.**

Oblique → **Any line that is neither horizontal nor vertical is an oblique line.**

You will be responsible for **<u>understanding</u>** how to find the equation for each type of line.

Algebra I Unit 7 The Equation of a Line

Horizontal Lines

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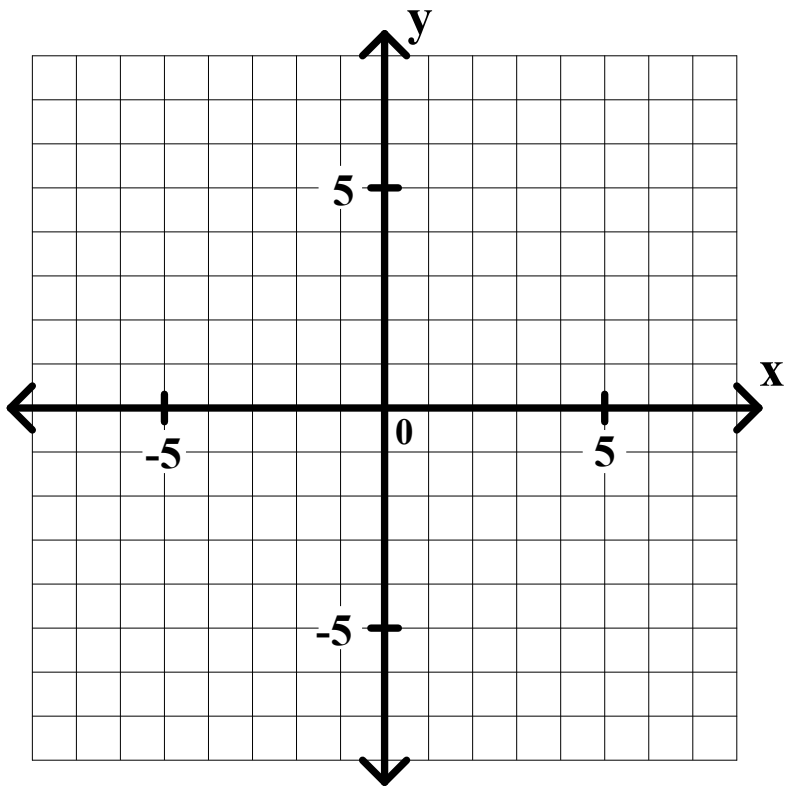

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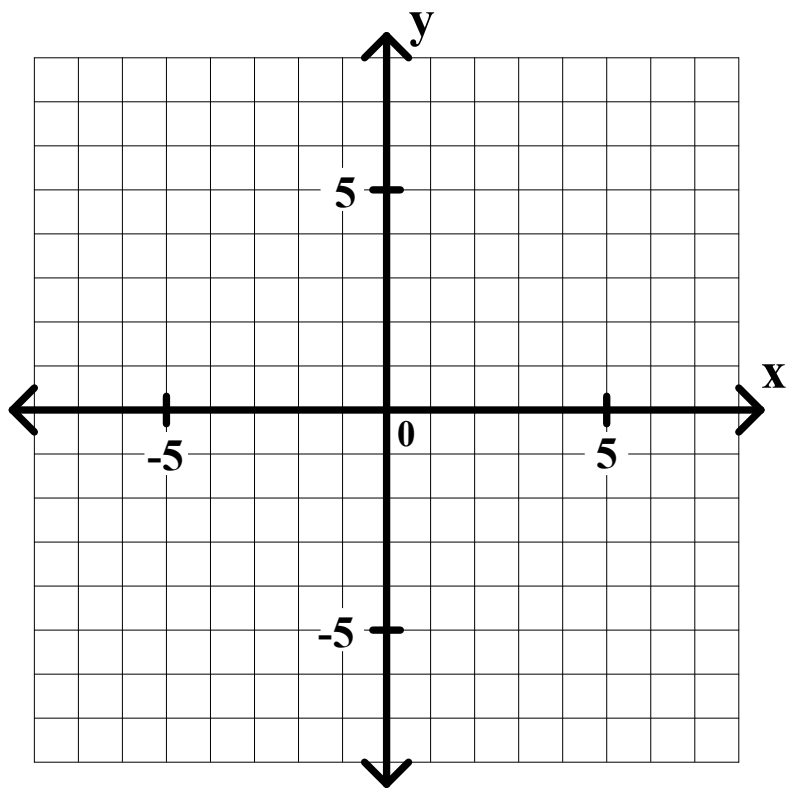

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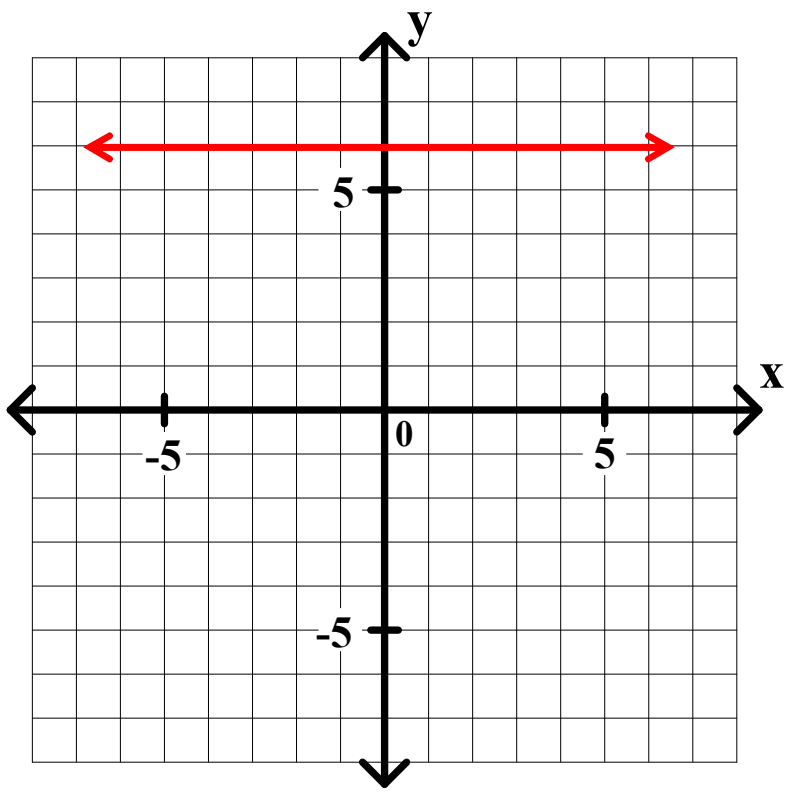

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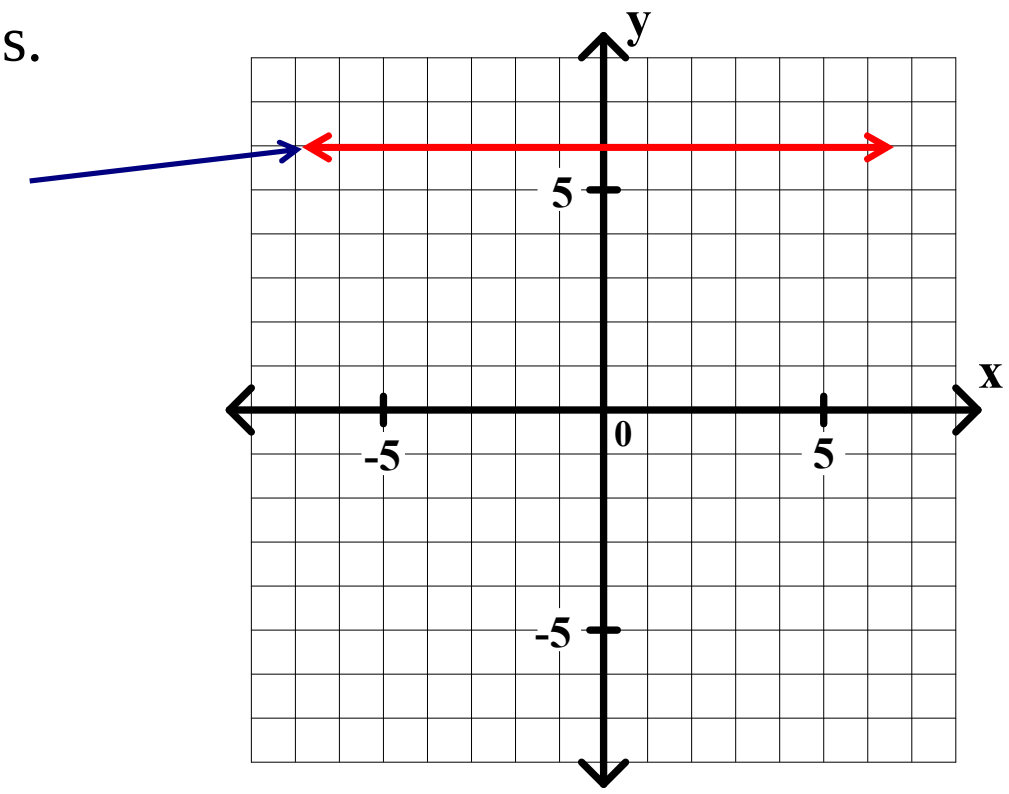
equation:



Algebra I Unit 7 The Equation of a Line

Horizontal Lines

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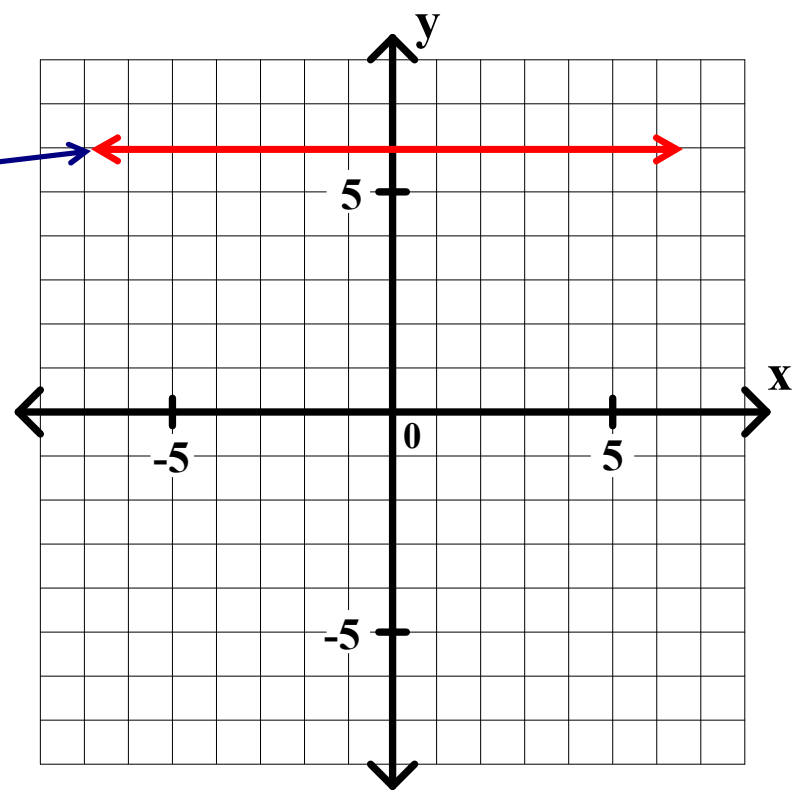
Here are some examples.

equation: **y = 6**



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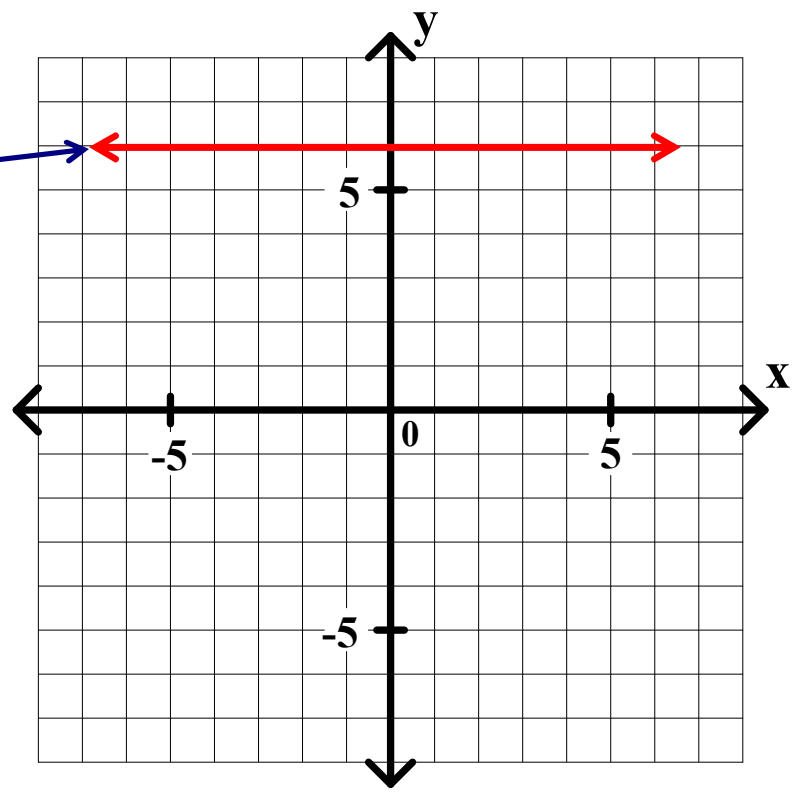
equation: **y = 6**

Every point on this line has a y-coordinate equal to 6 !!!



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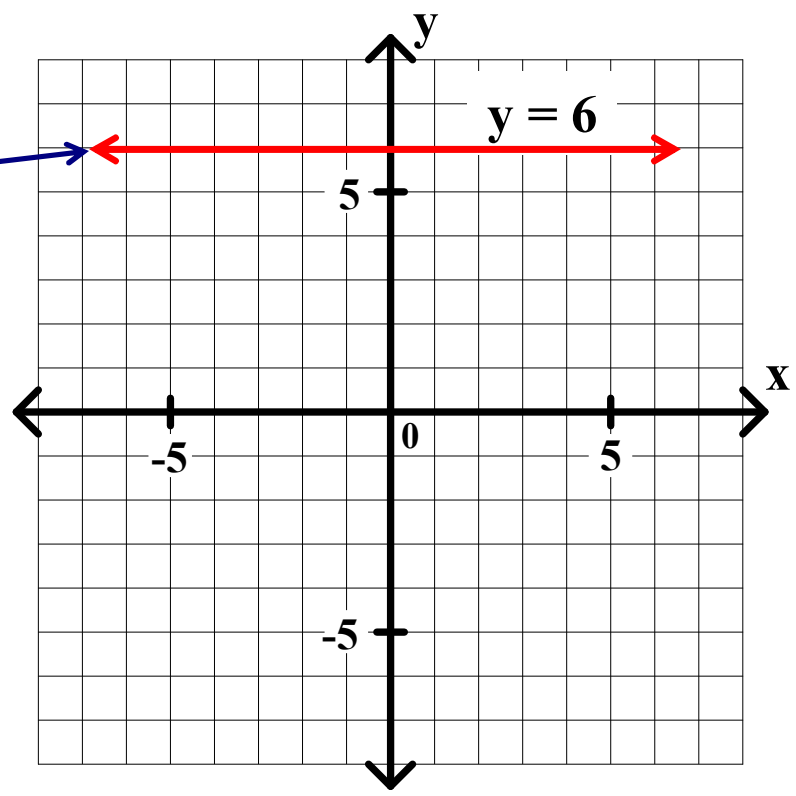

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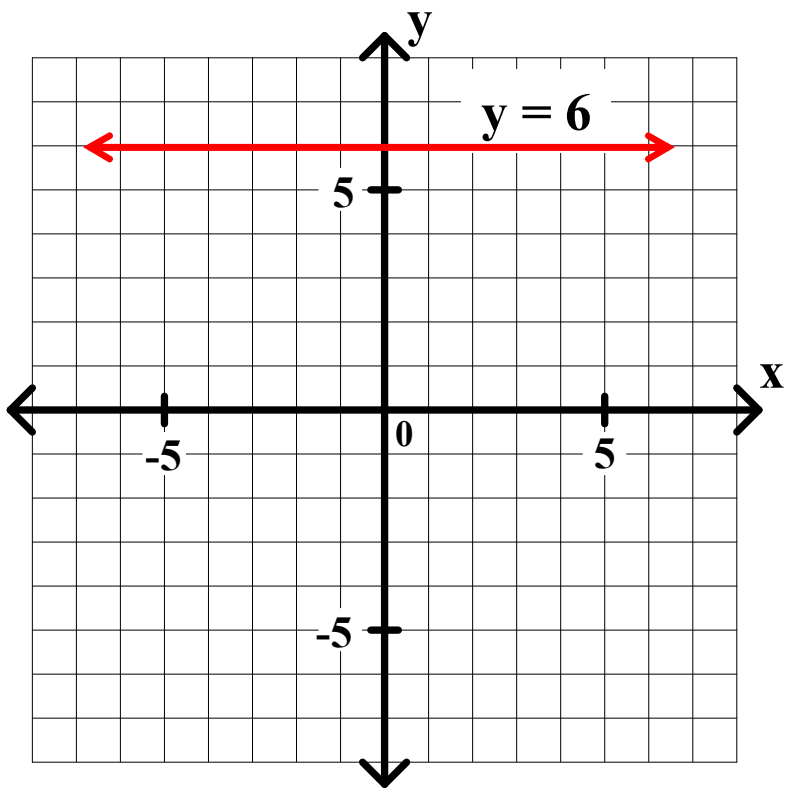

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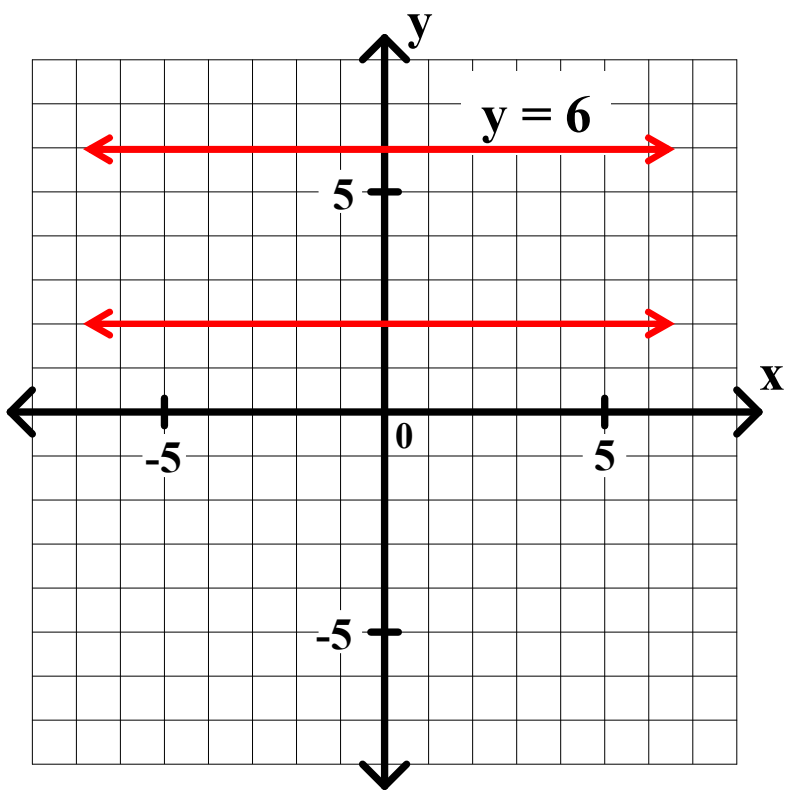

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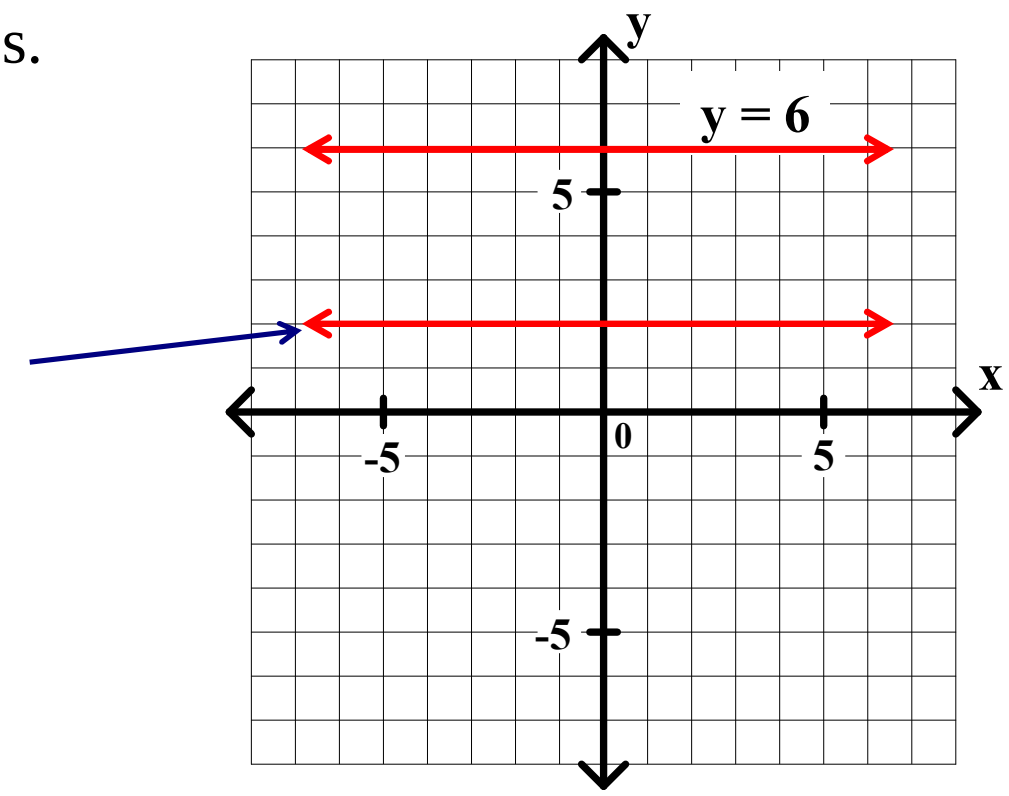


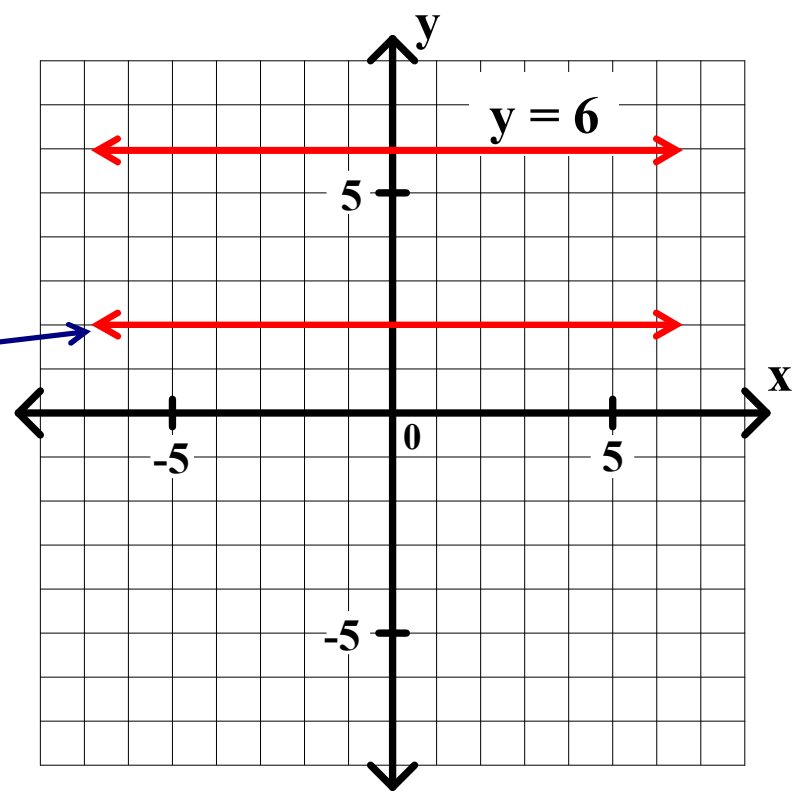
Algebra I Unit 7 The Equation of a Line

Horizontal Lines

The x-axis or any line parallel to the x-axis is a horizontal line.

Here are some examples.

equation: **y = 2**



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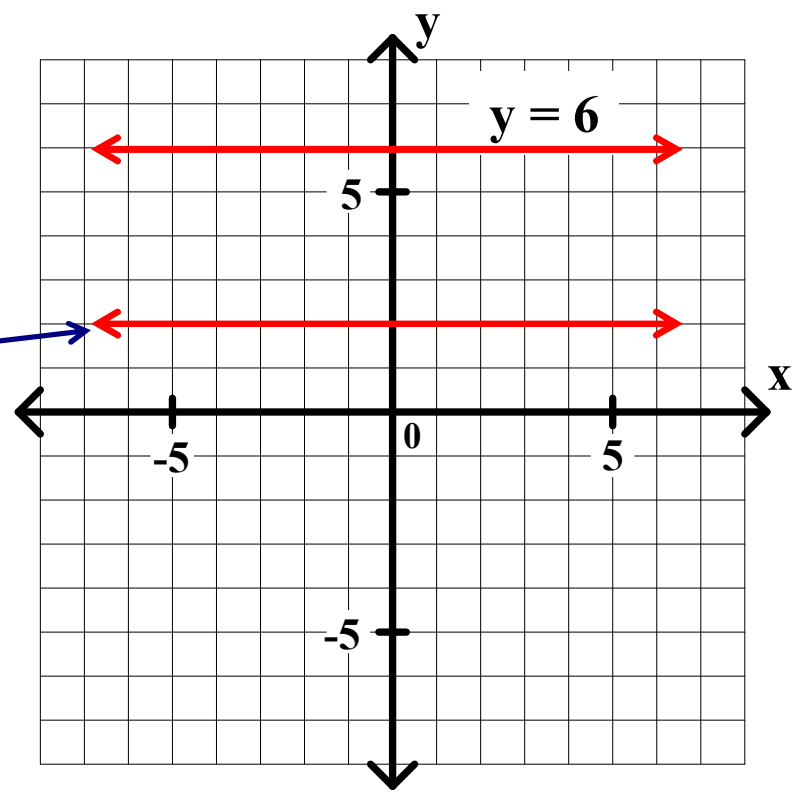

equation: **y = 2**

Every point on this line has a y-coordinate equal to 2 !!!

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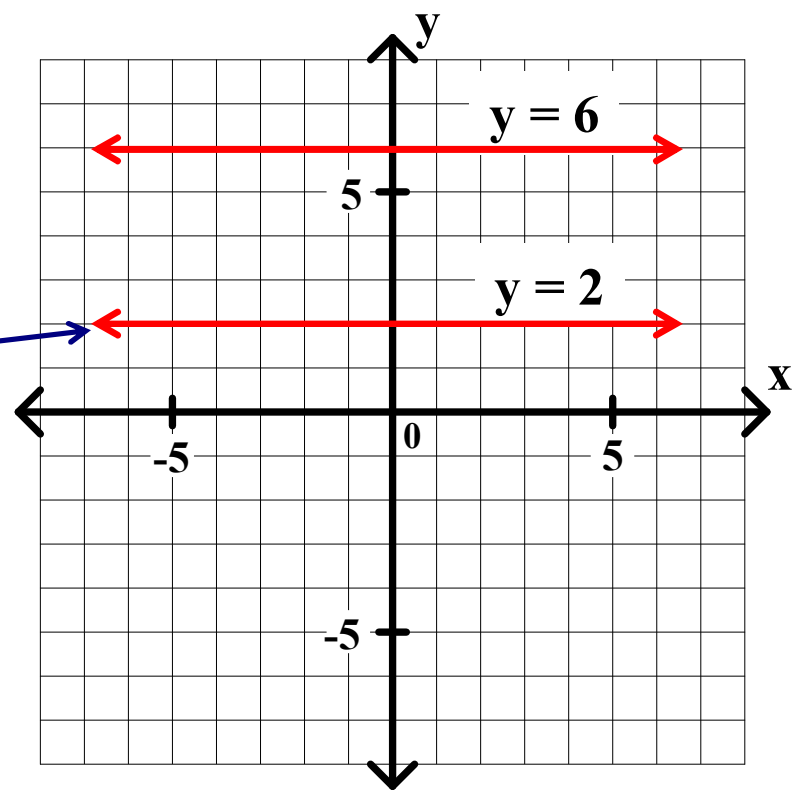

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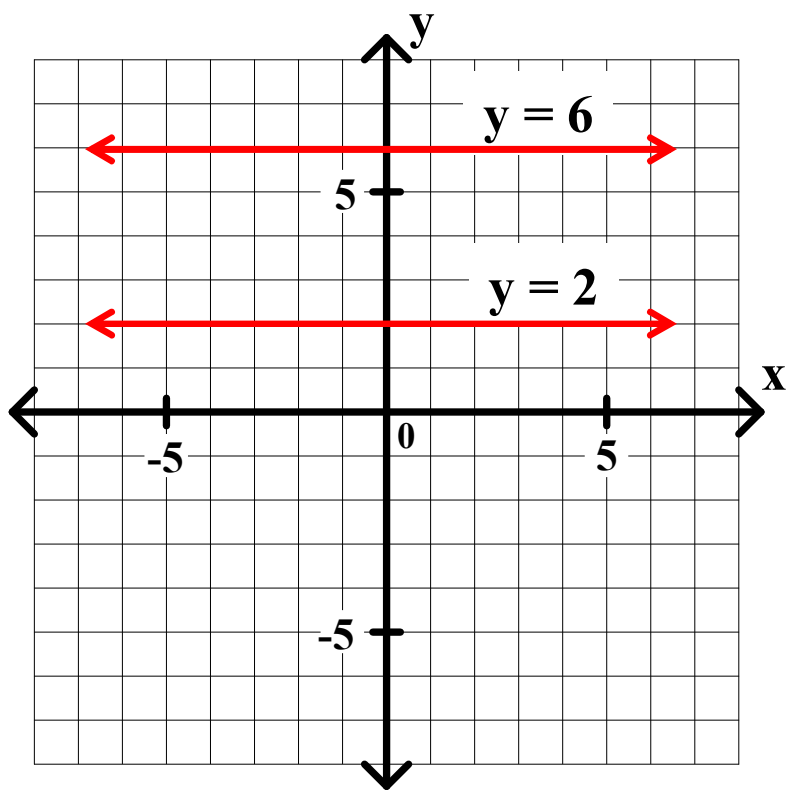

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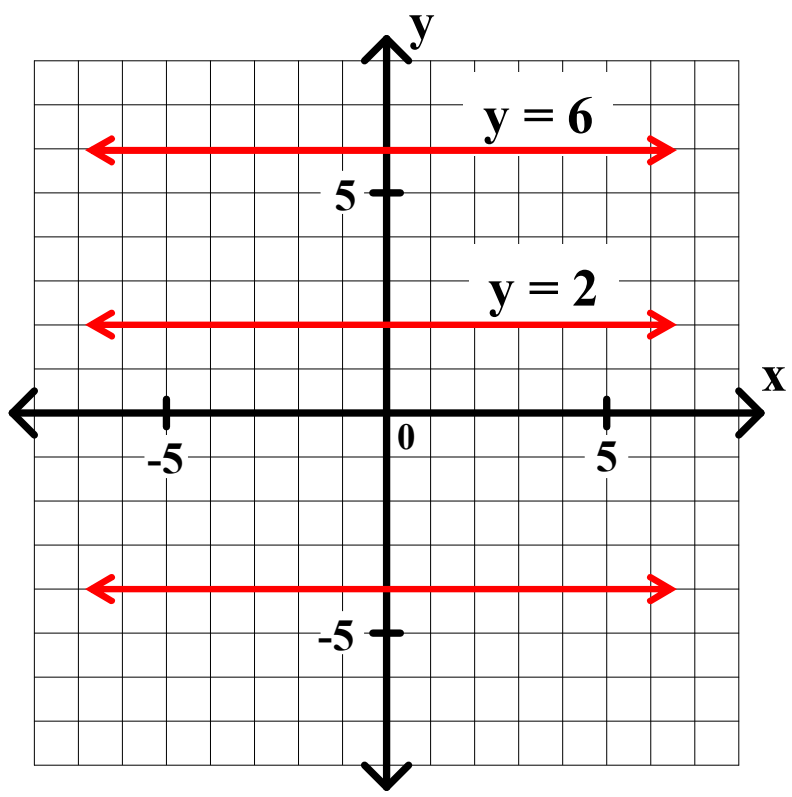

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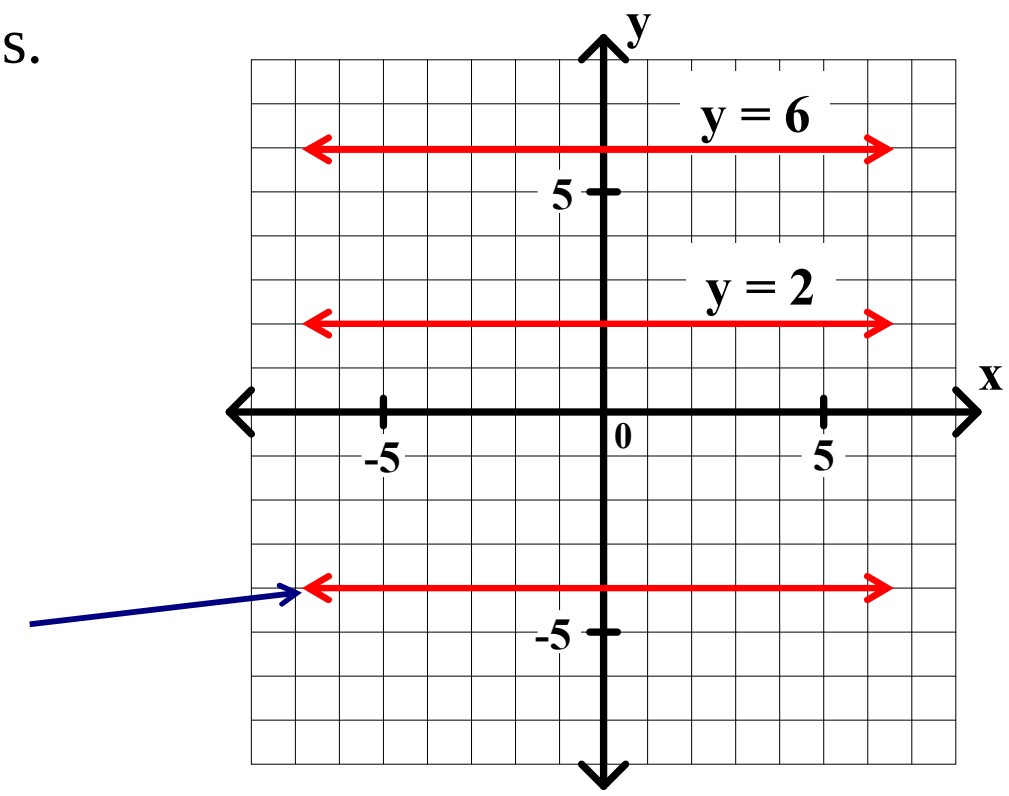

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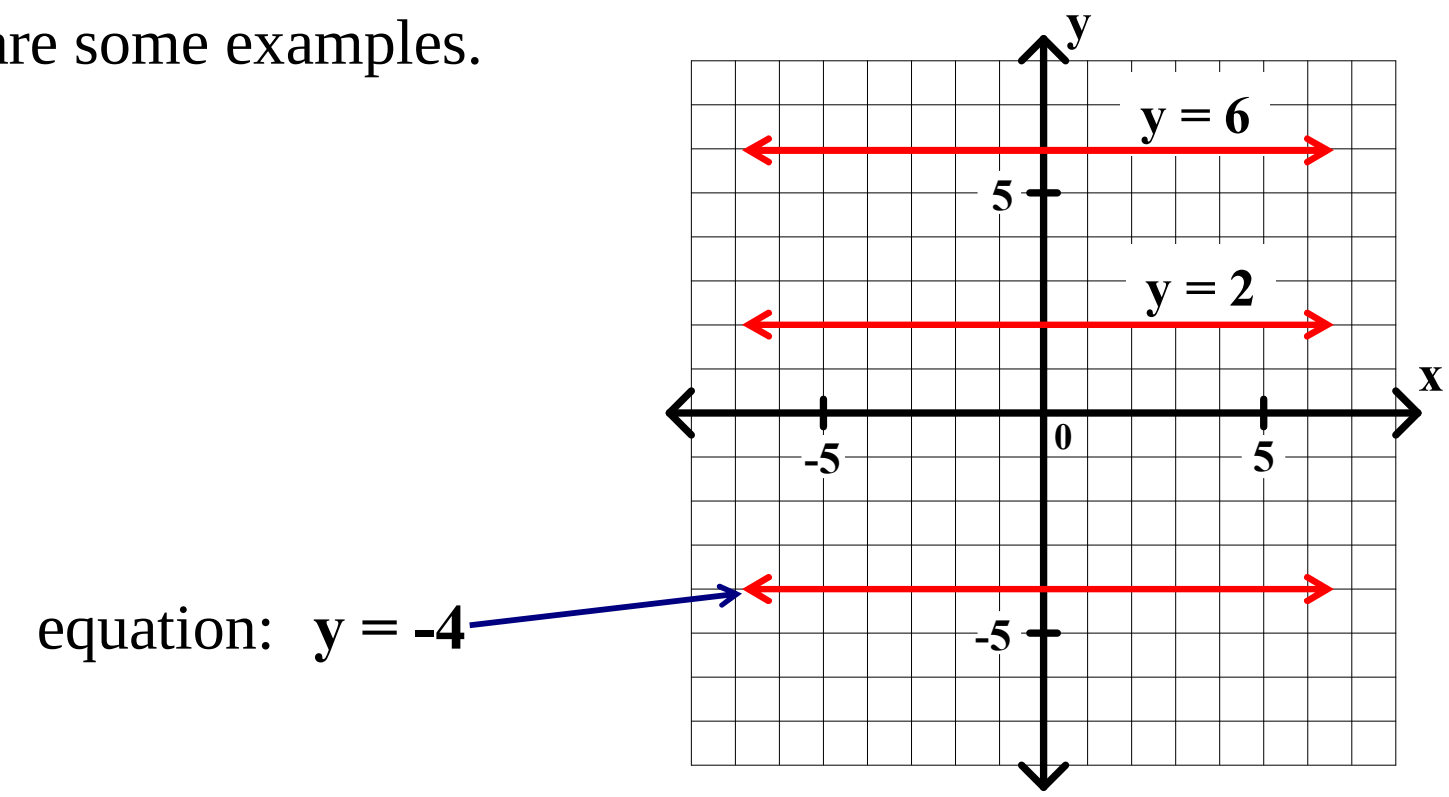

equation: **y = -4**

Algebra I Unit 7 The Equation of a Line

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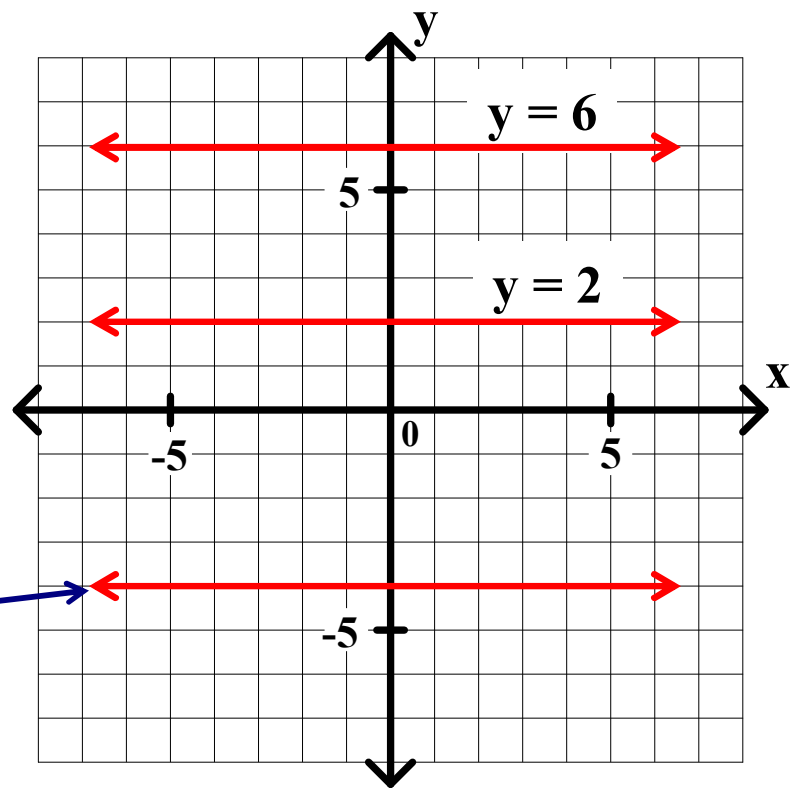

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Every point on this line has a y-coordinate equal to -4 !!!

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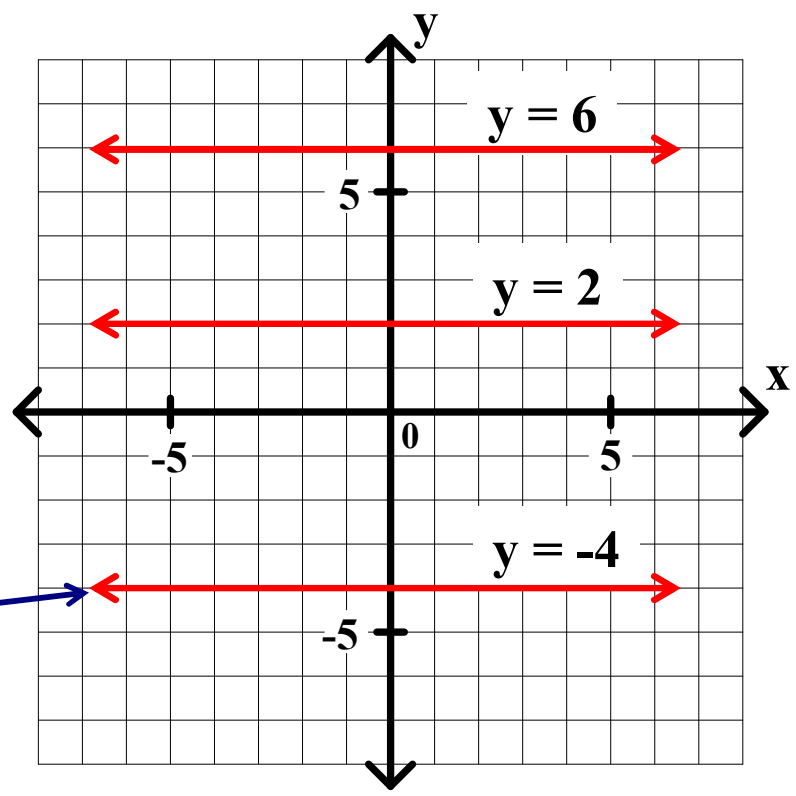

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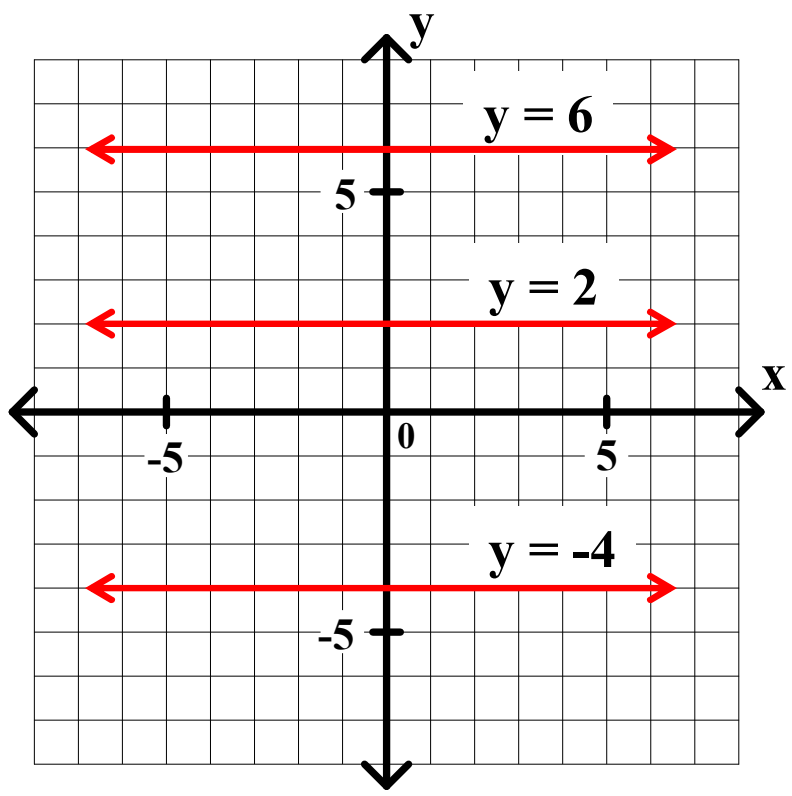

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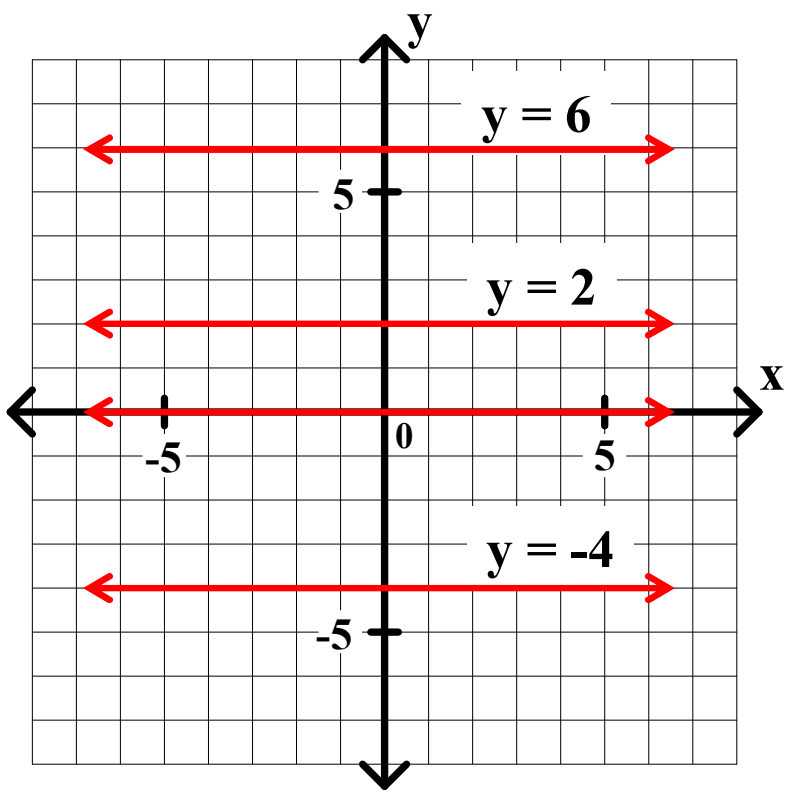

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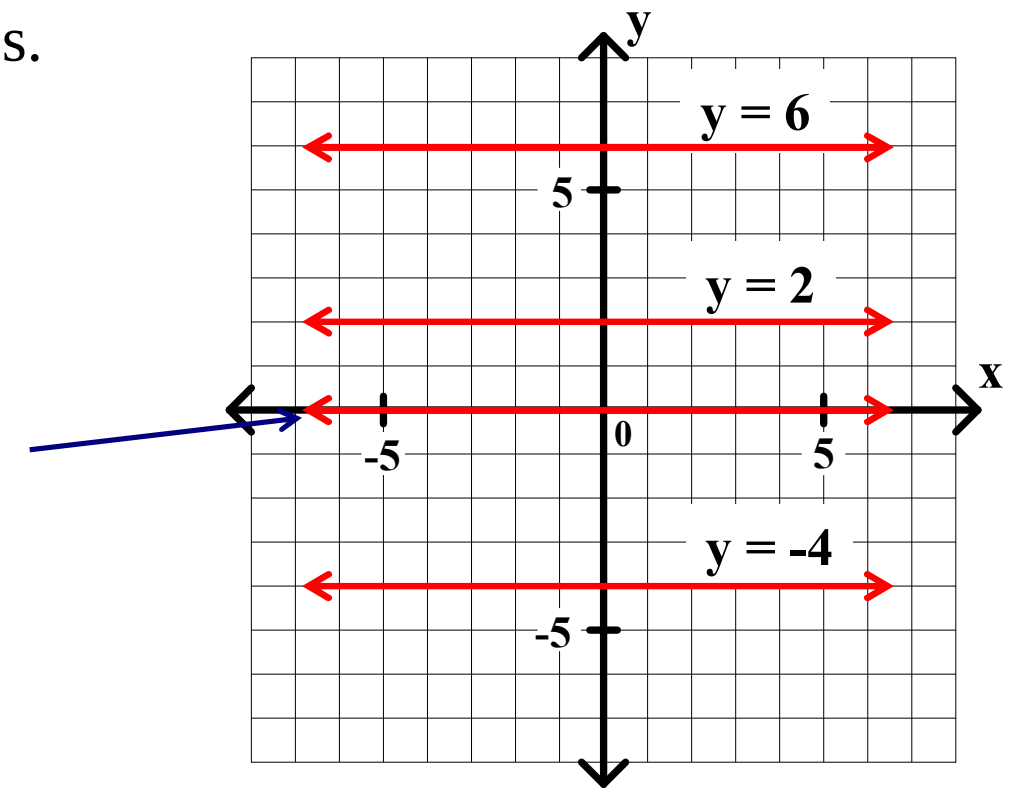

Algebra I Unit 7 The Equation of a Line

Horizontal Lines

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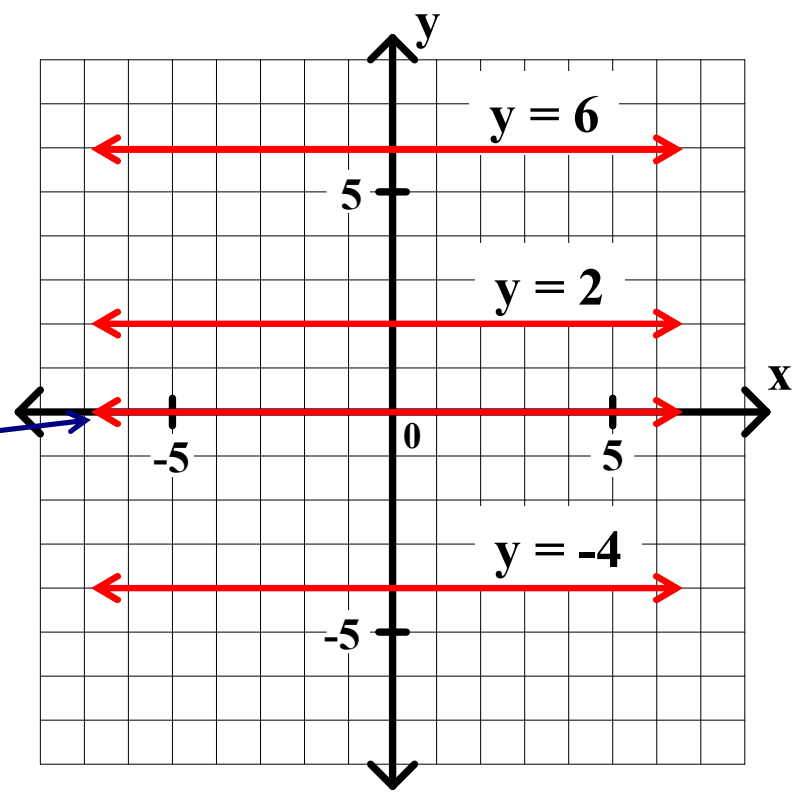
equation: **y = 0**



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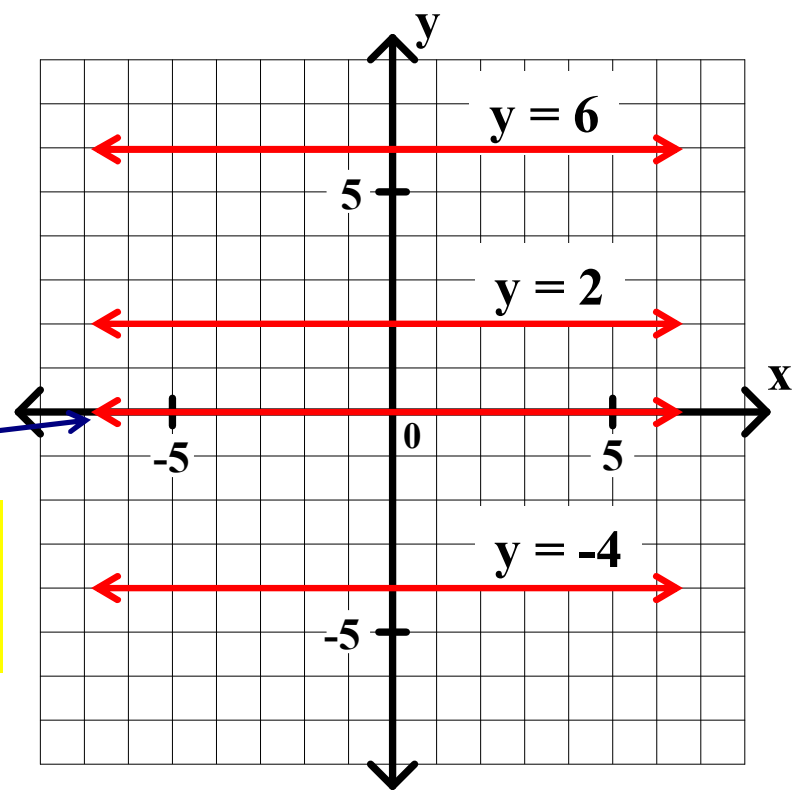

equation: **y = 0**

Every point on the x-axis has a y-coordinate equal to 0 !!!

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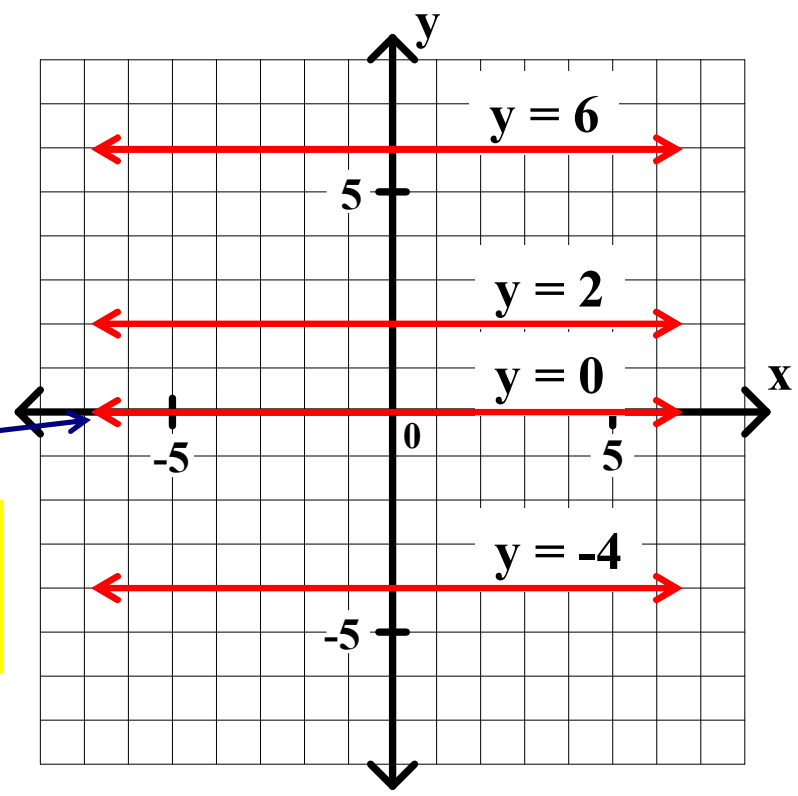

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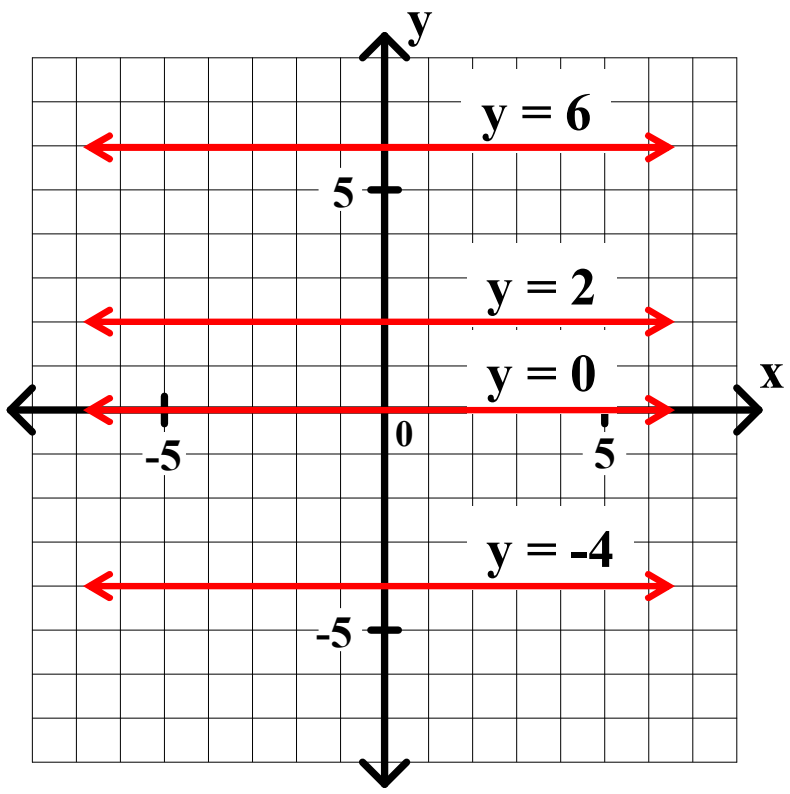

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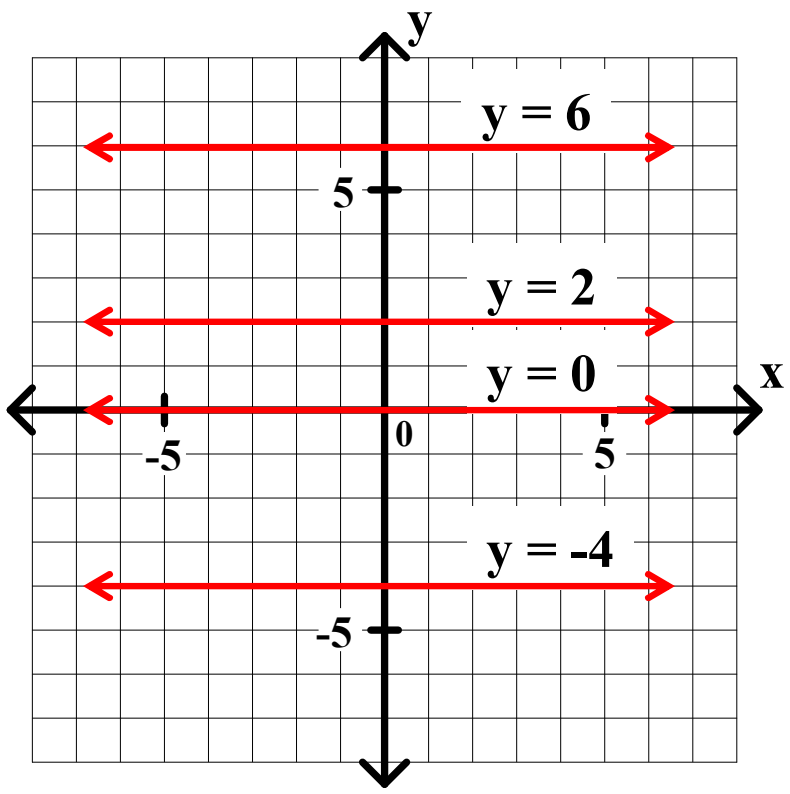

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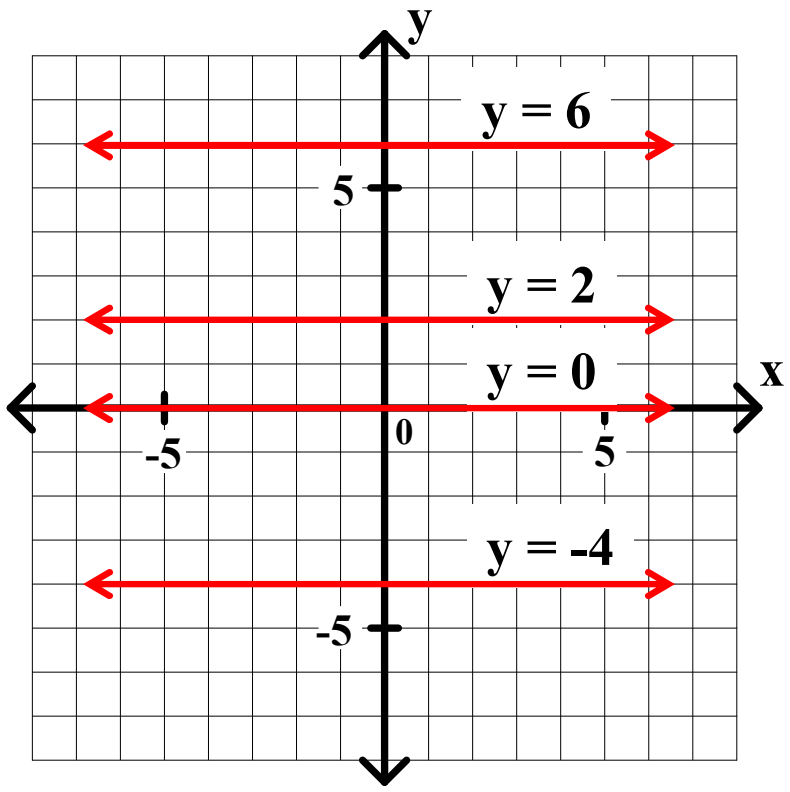
$$y = k.$$



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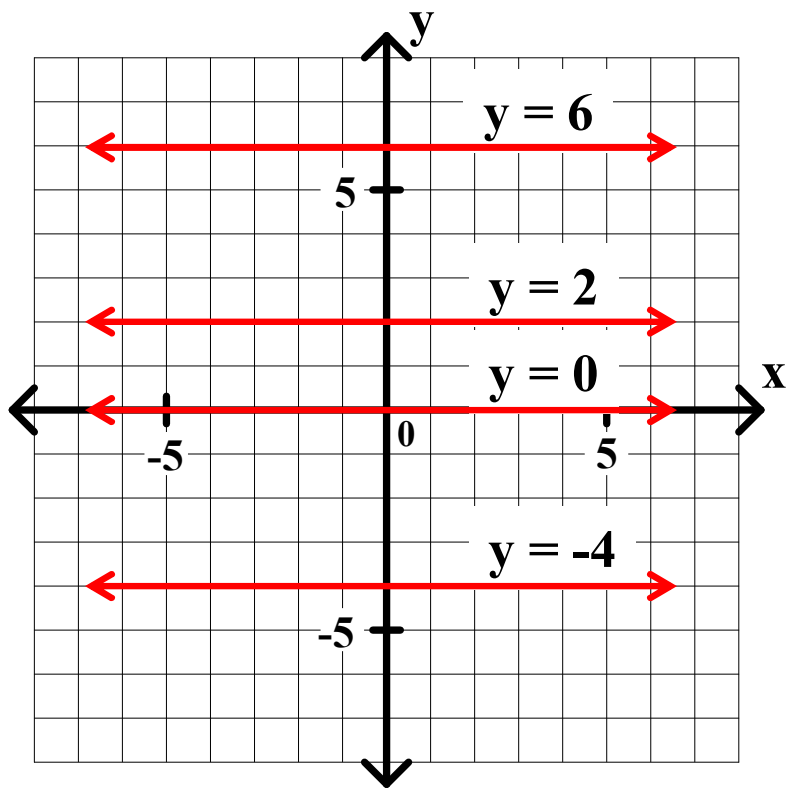
The Slope of a Horizontal Line



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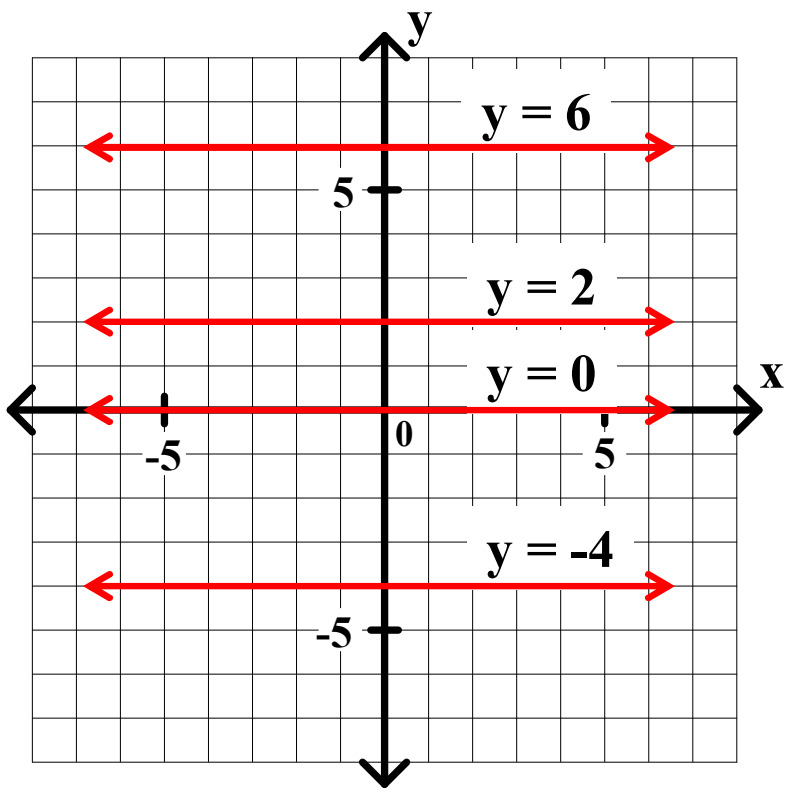

The Slope of a Horizontal Line

$$\text{Slope} = \frac{\text{Rise}}{\text{Run}}$$

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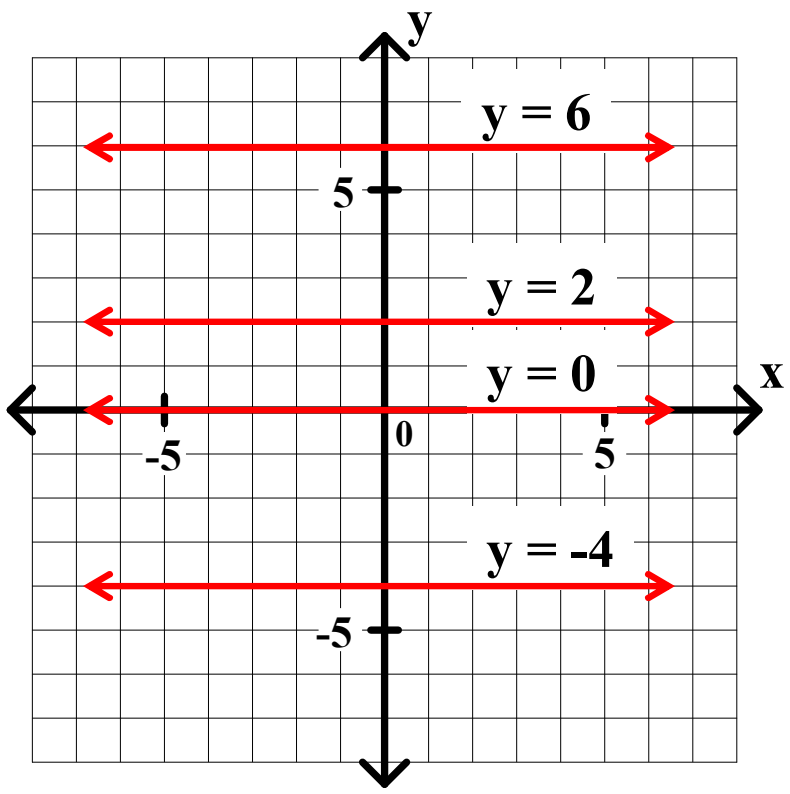

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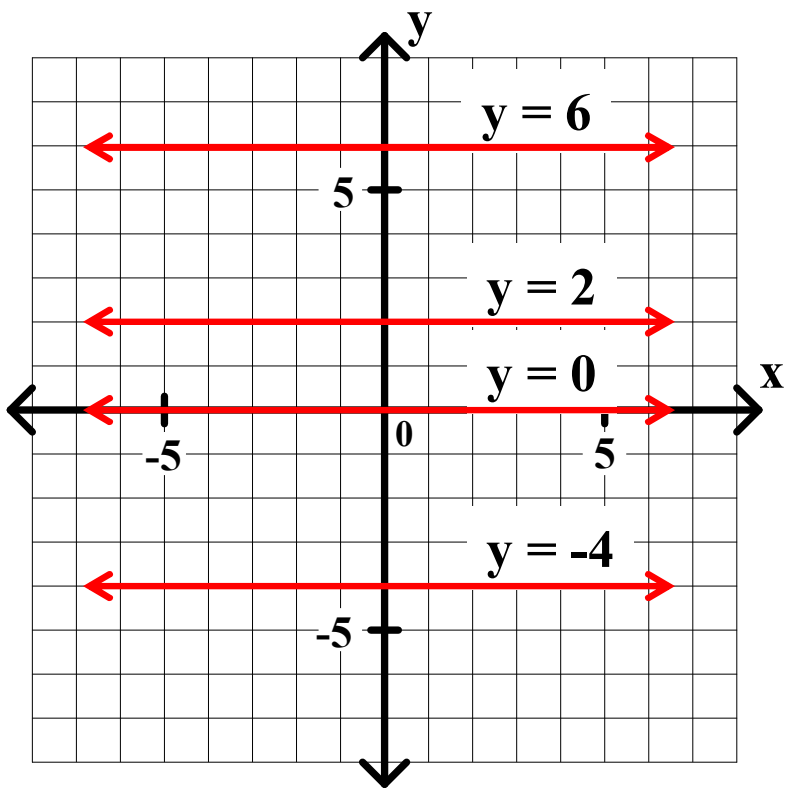

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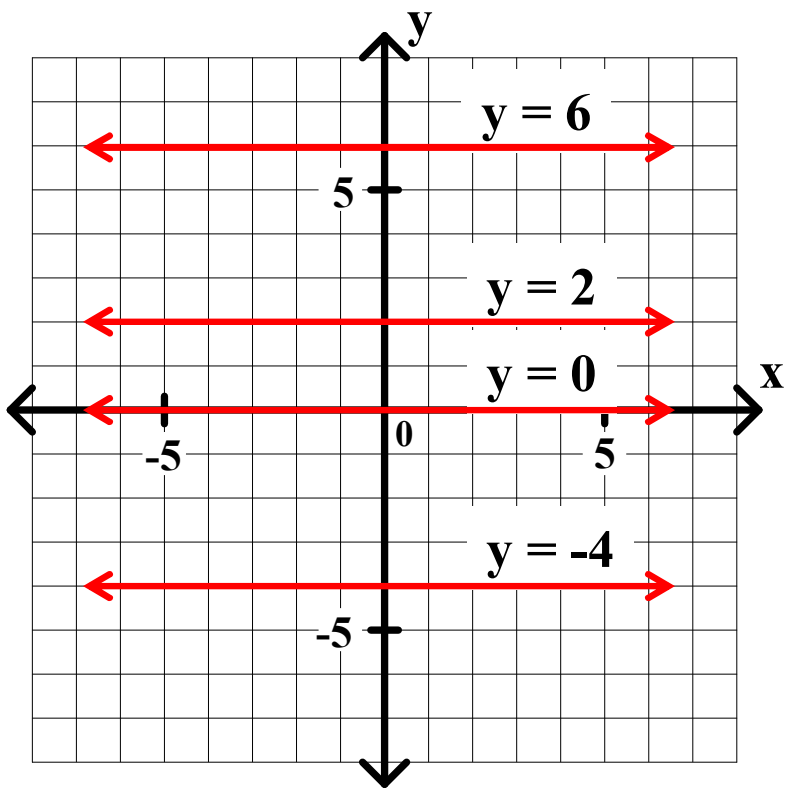

The Slope of a Horizontal Line

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The **<u>rise</u>** is 0 !! (The run is not 0.)

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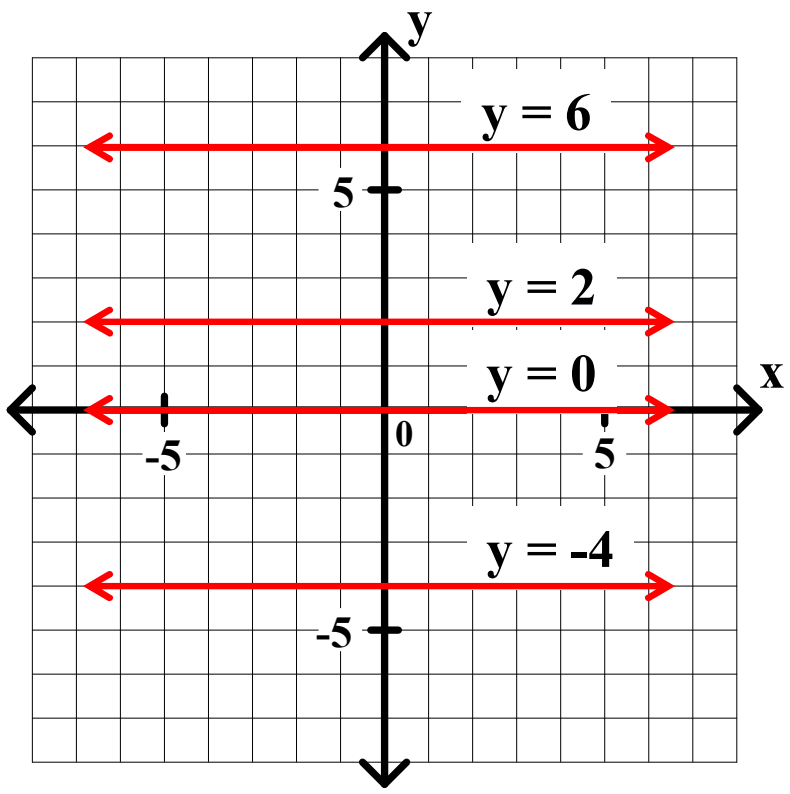

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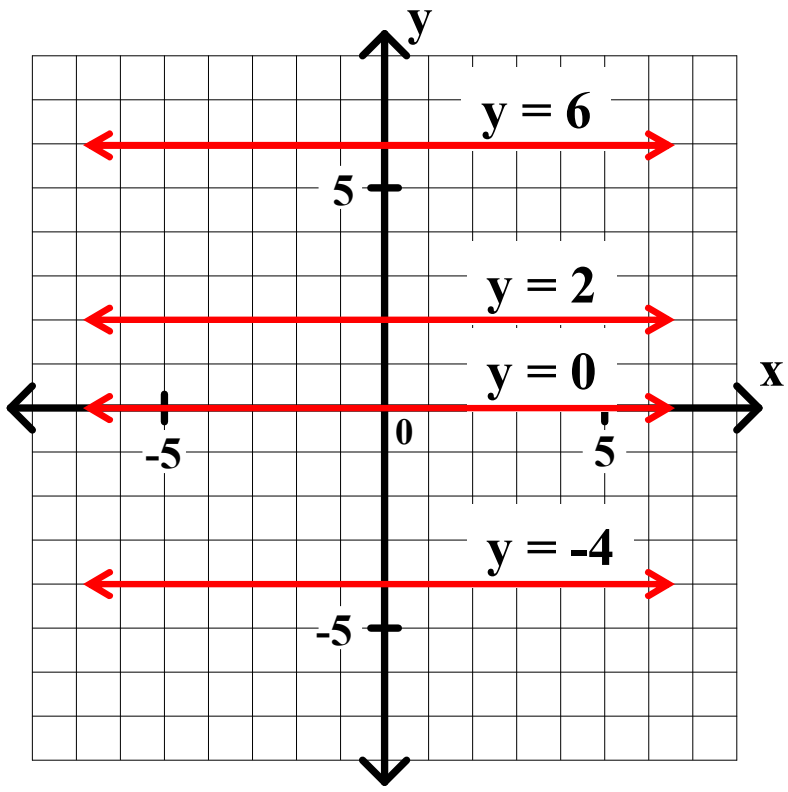

The Slope of a Horizontal Line

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The **<u>rise</u>** is 0 !! (The run is not 0.)

The slope of every horizontal line is 0.

Algebra I Unit 7 The Equation of a Line

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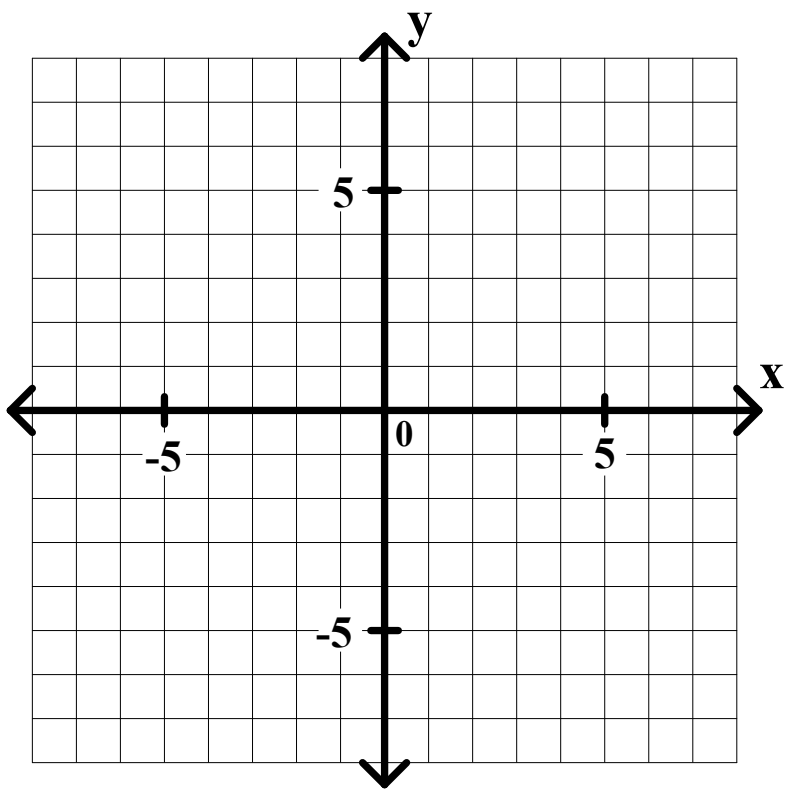

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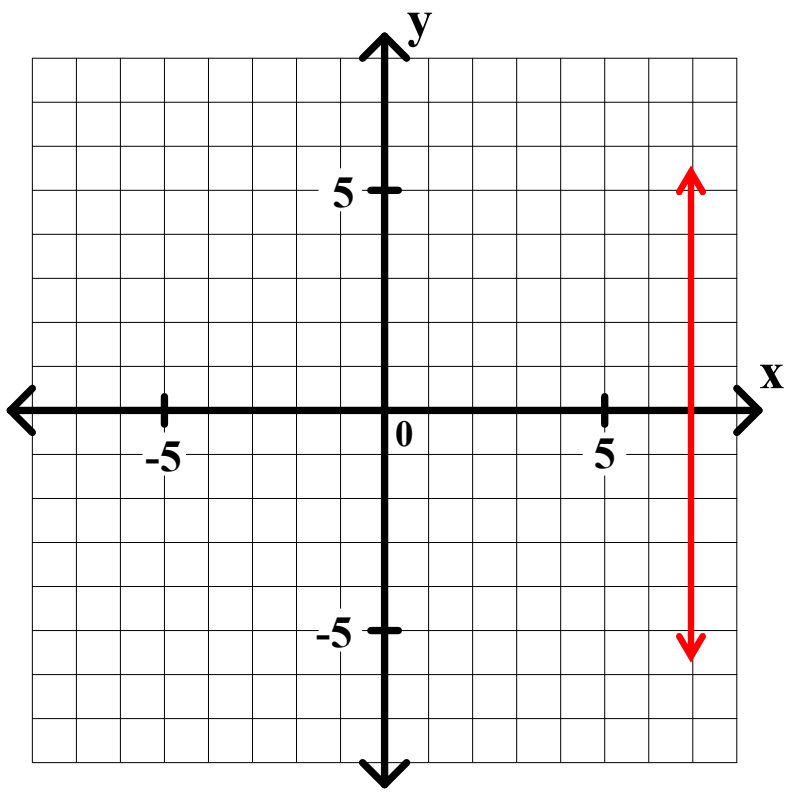

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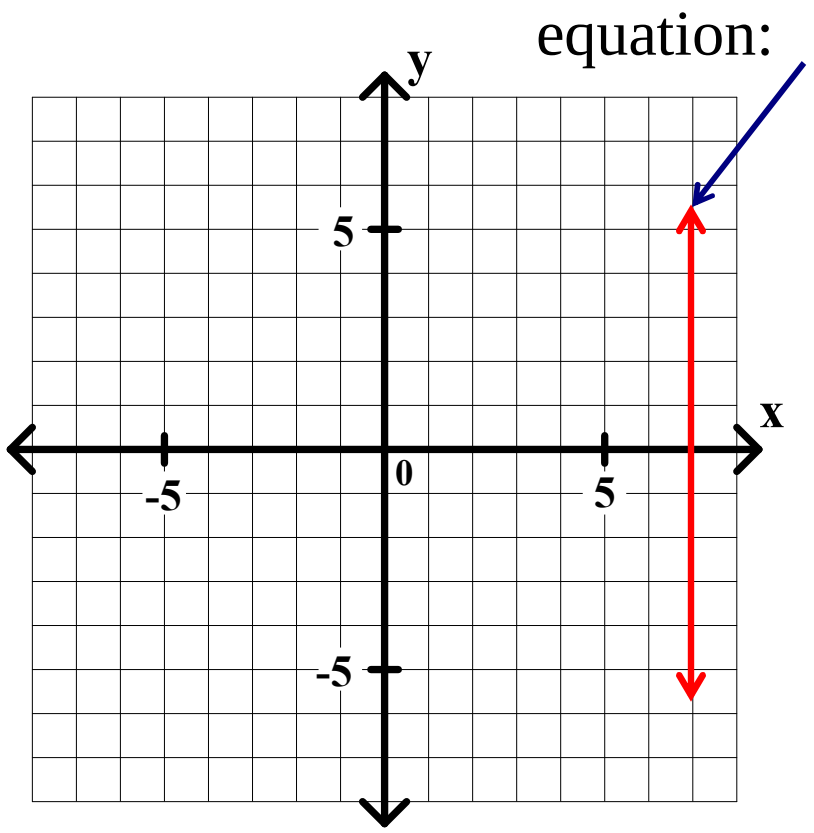

Algebra I Unit 7 The Equation of a Line

Vertical Lines

The y-axis or any line parallel to the y-axis is a vertical line.

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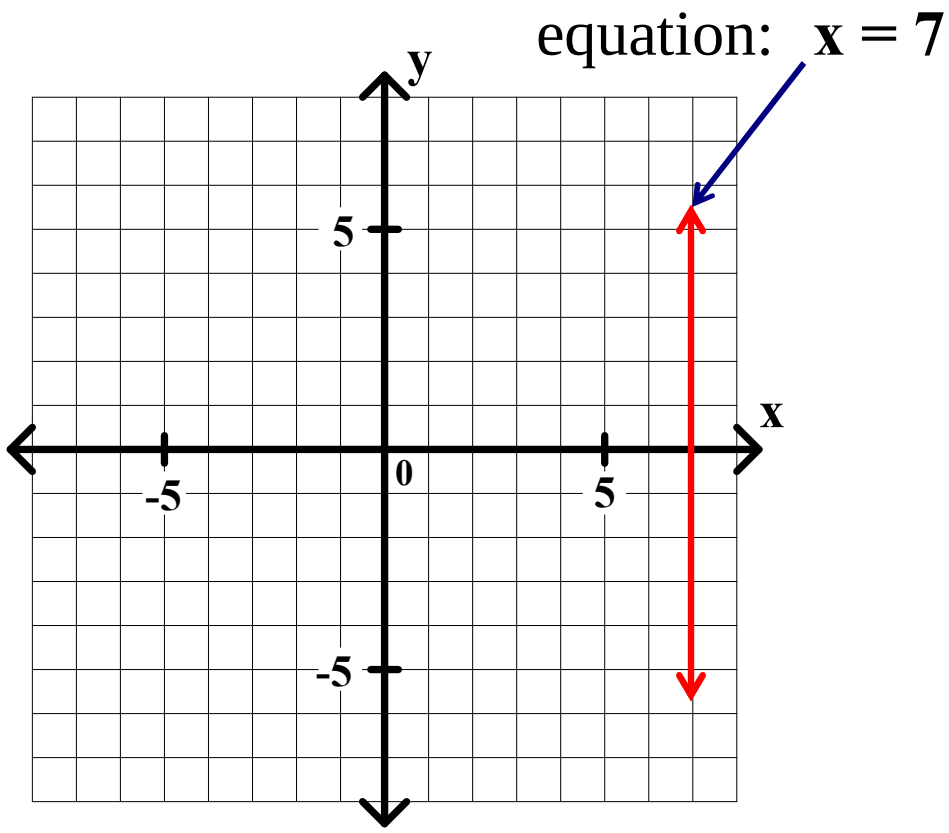

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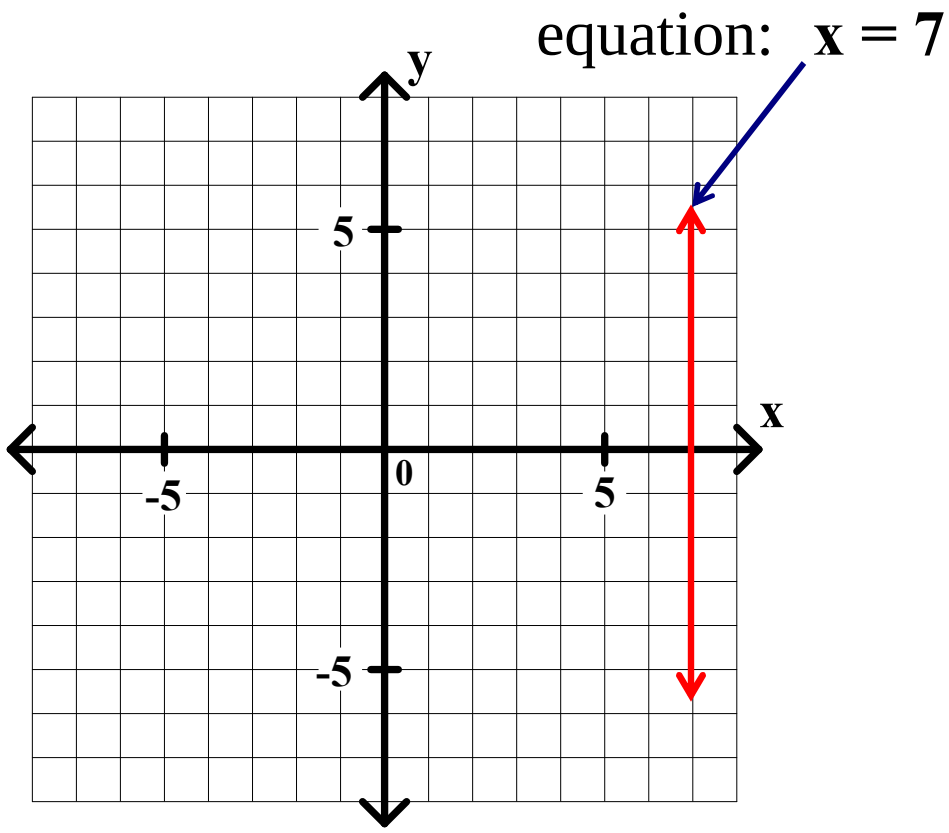
Every point on this line has an x-coordinate equal to 7 !!!



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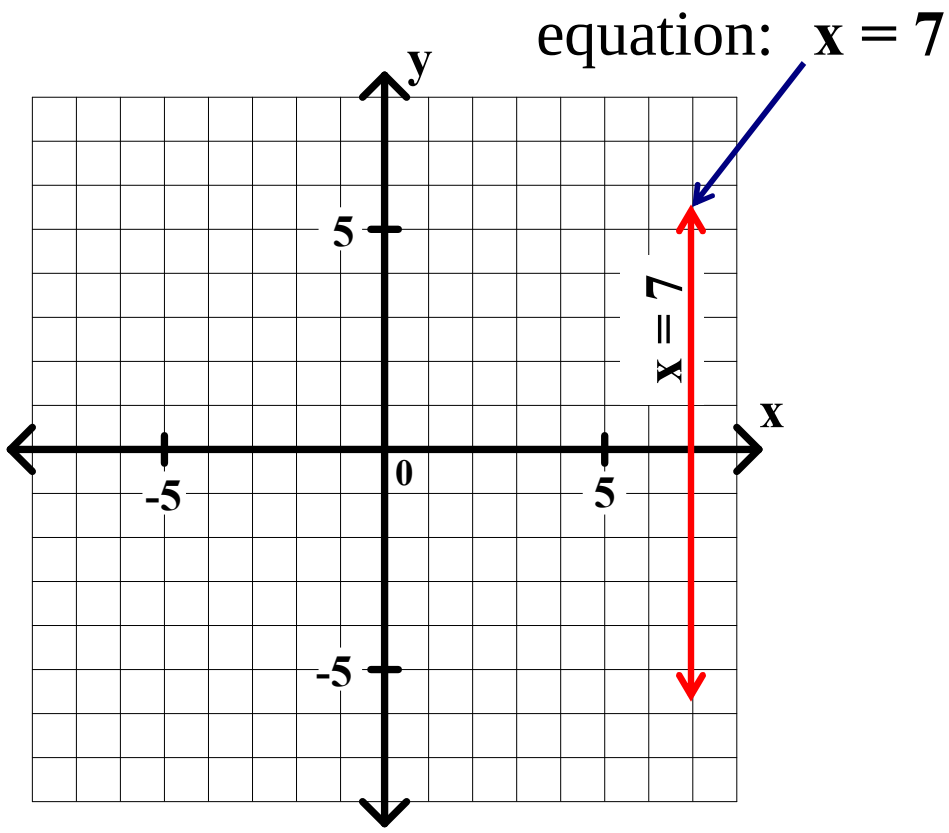

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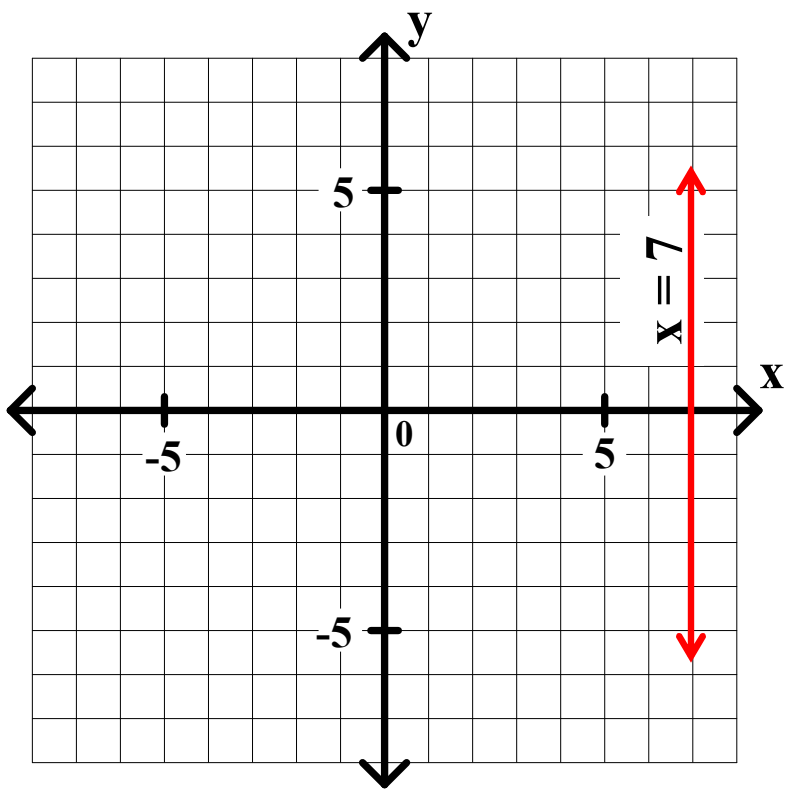

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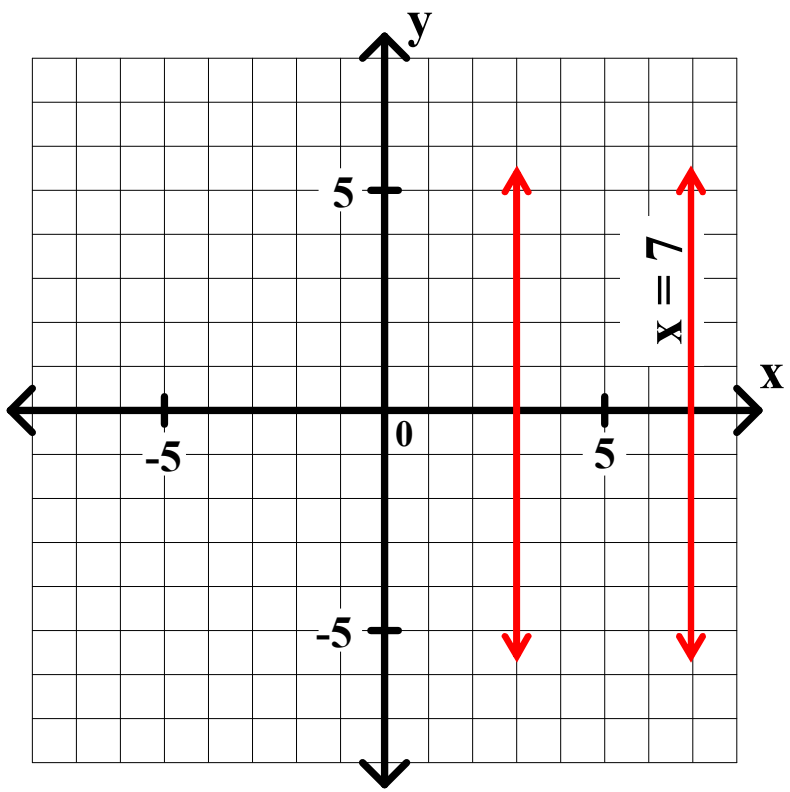

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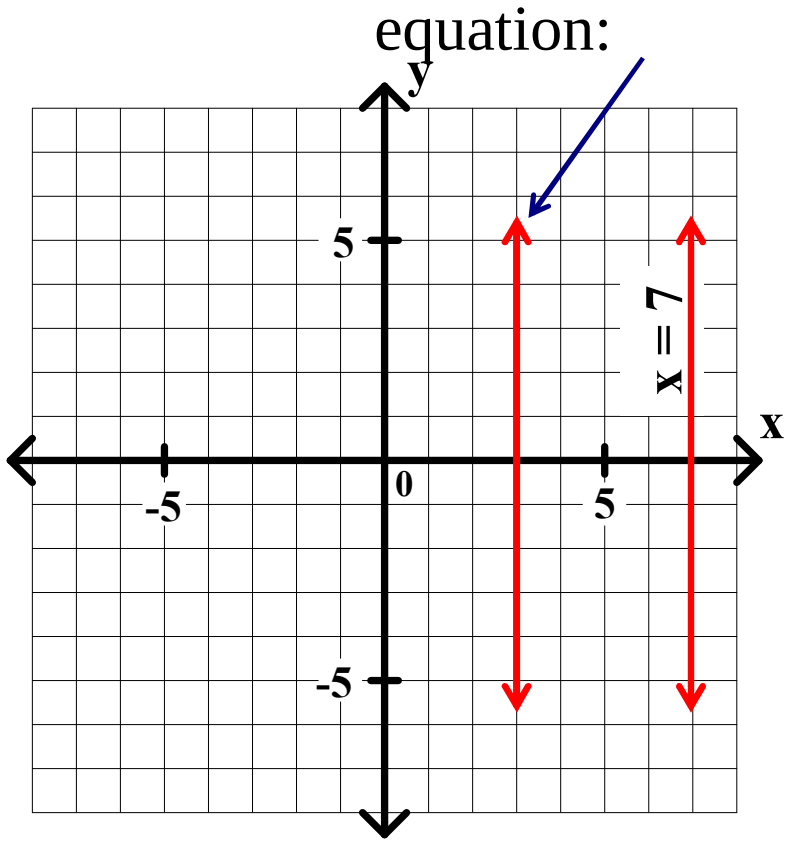

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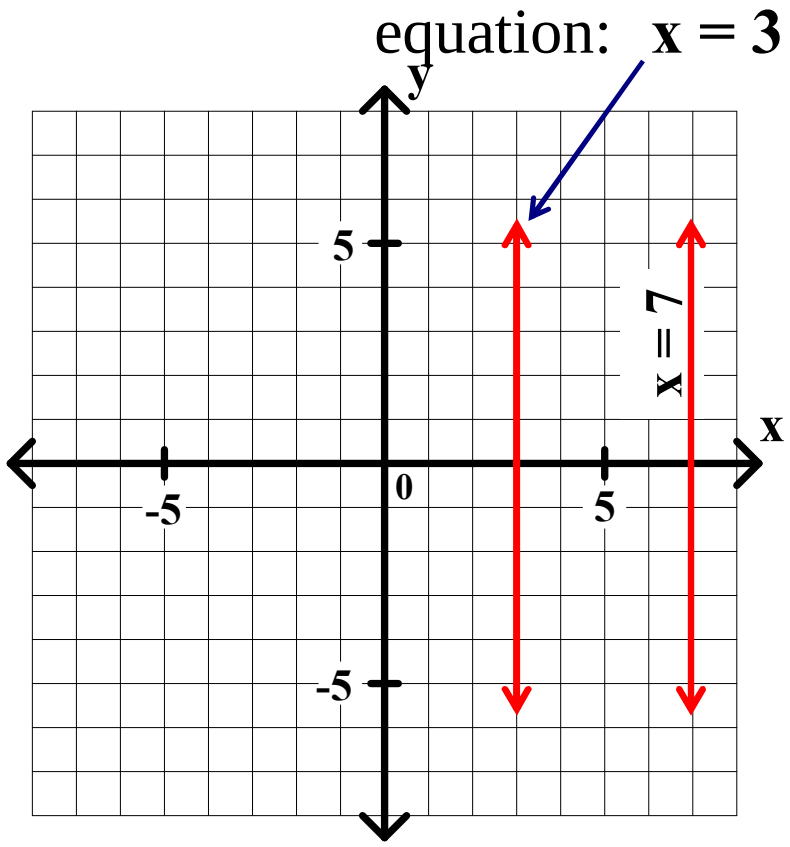

Algebra I Unit 7 The Equation of a Line

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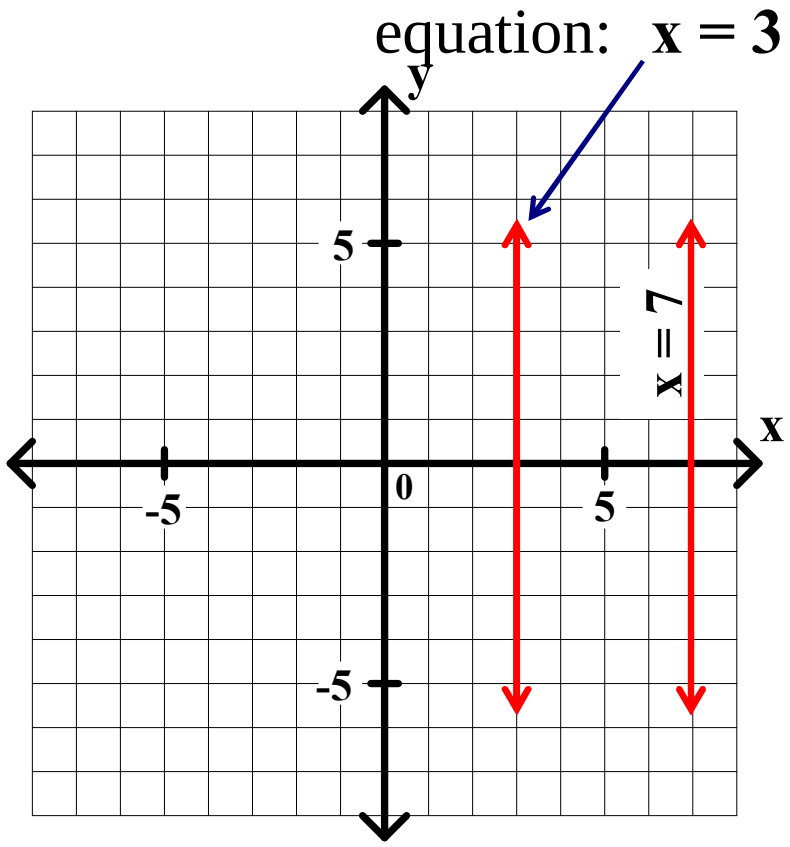
Here are some examples.

Every point on this line has an x-coordinate equal to 3 !!!



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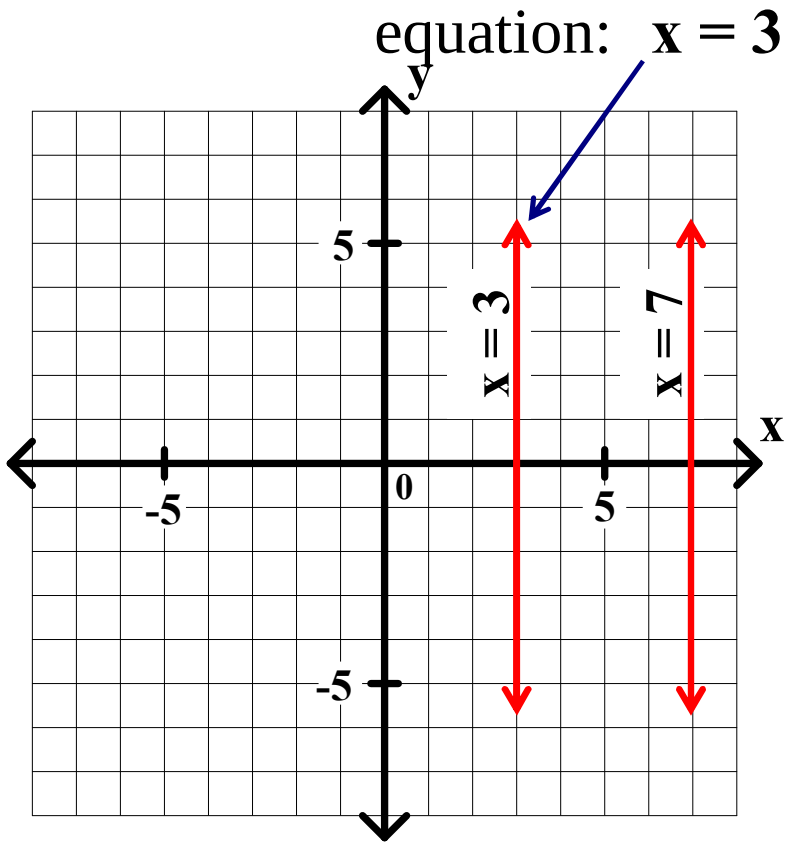

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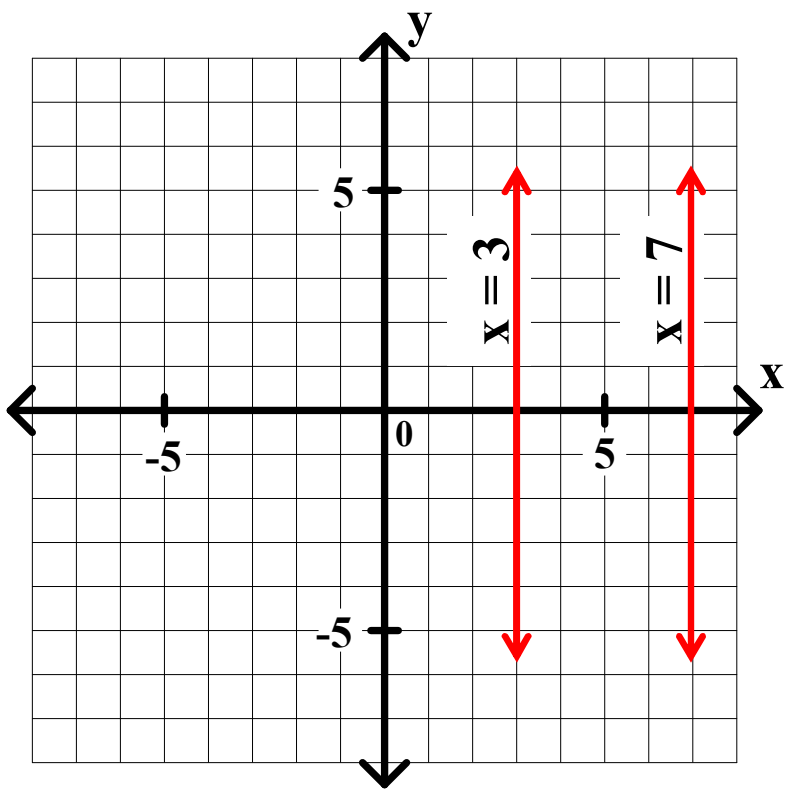

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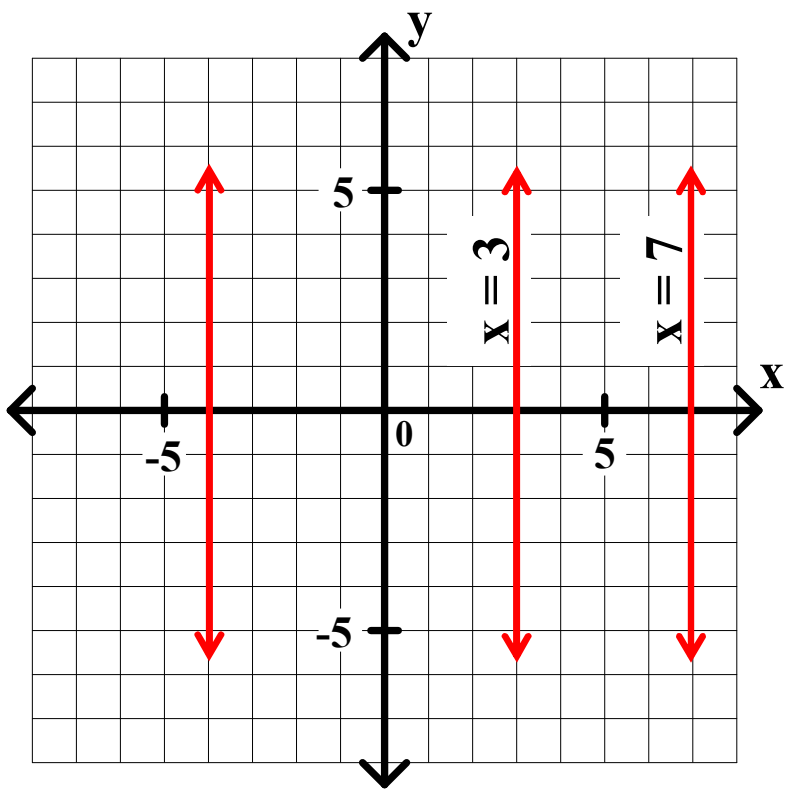

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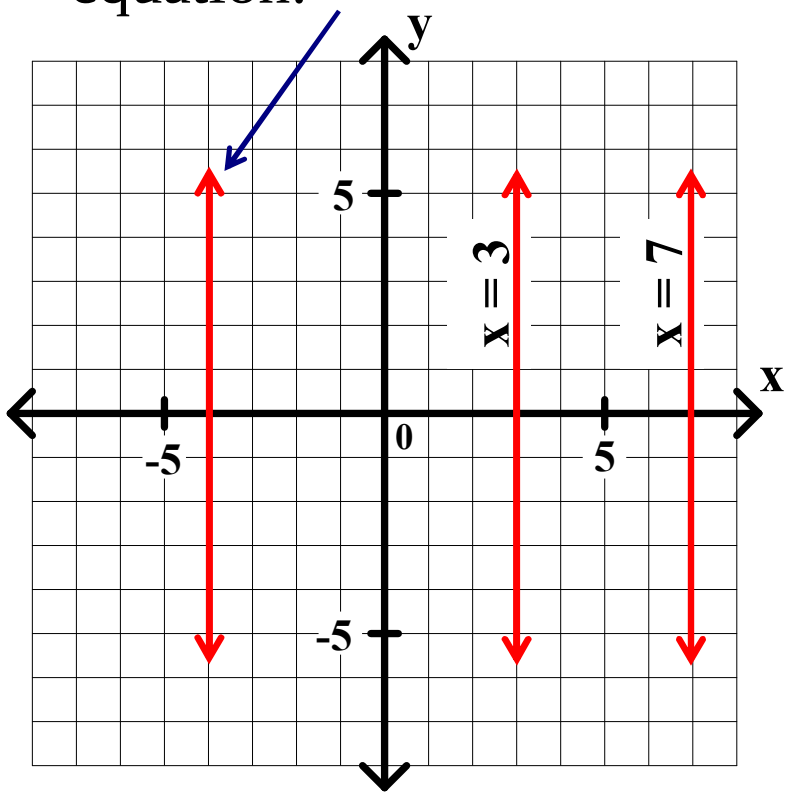

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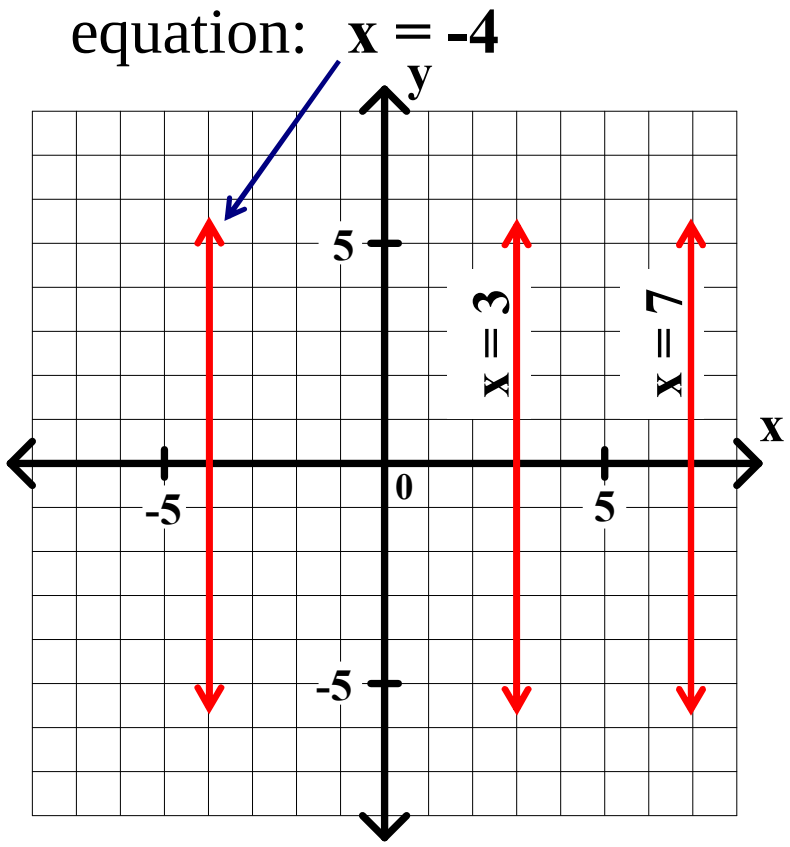

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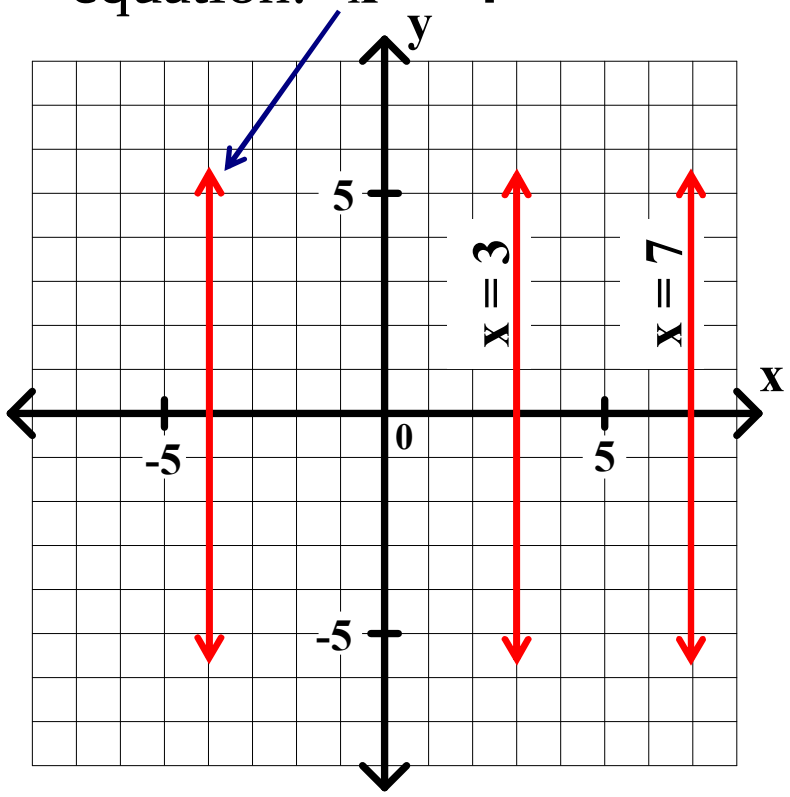
Here are some examples.

Every point on this line has an x-coordinate equal to -4 !!!

equation: **x = -4**



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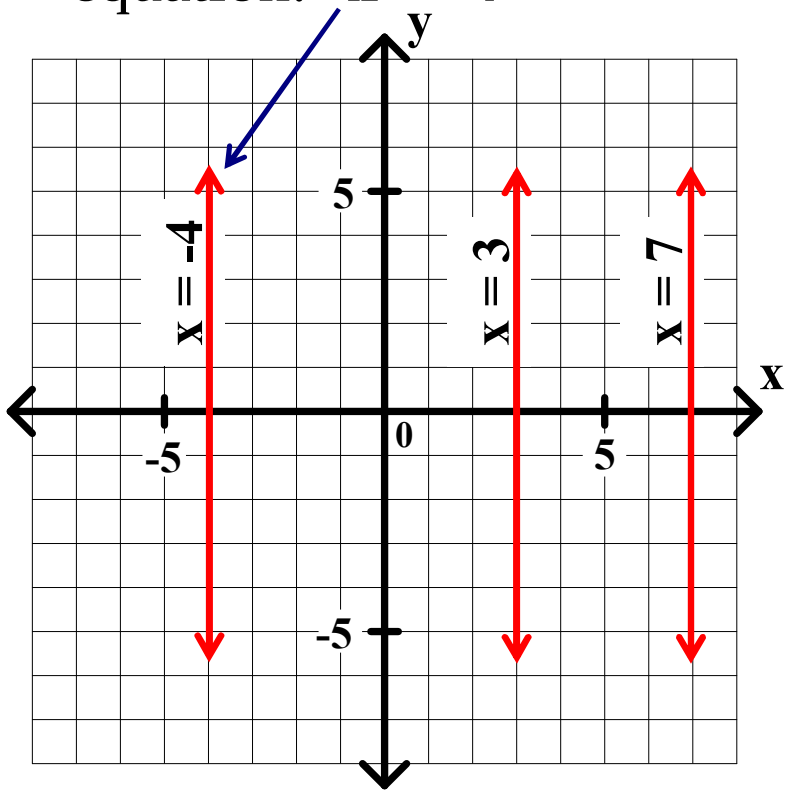

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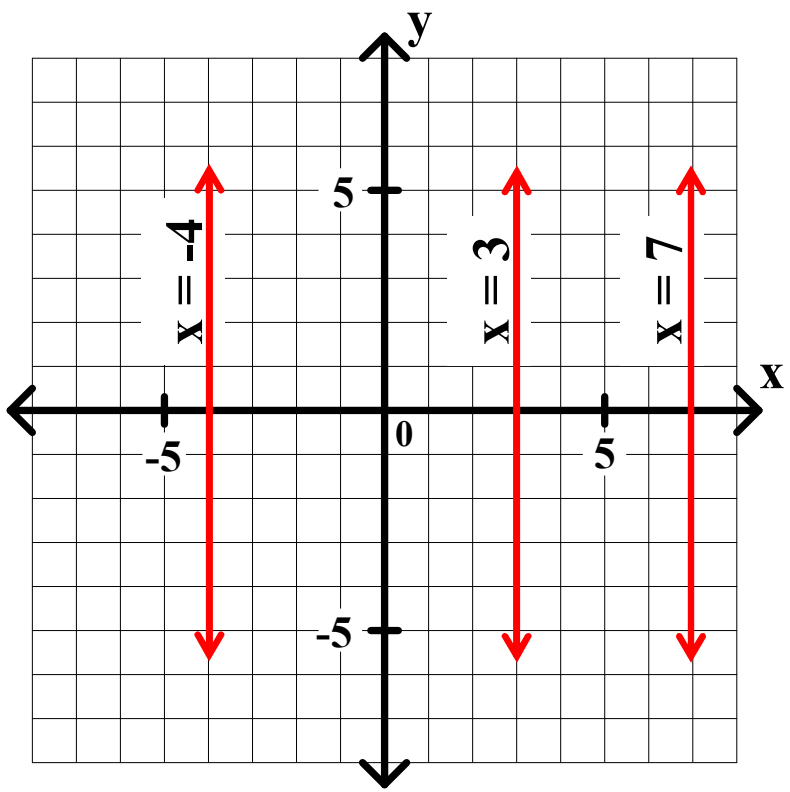

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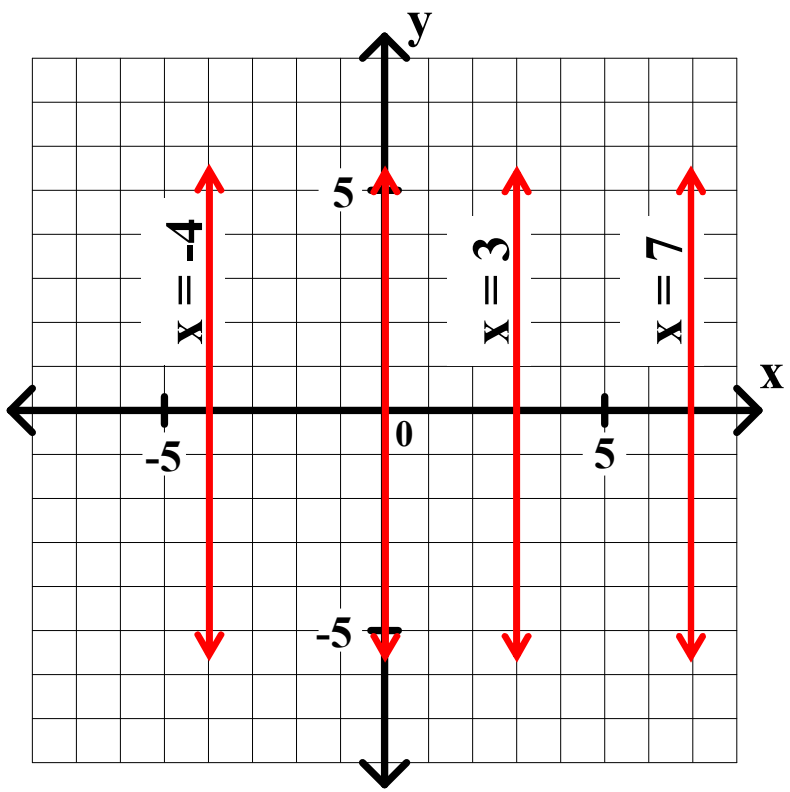

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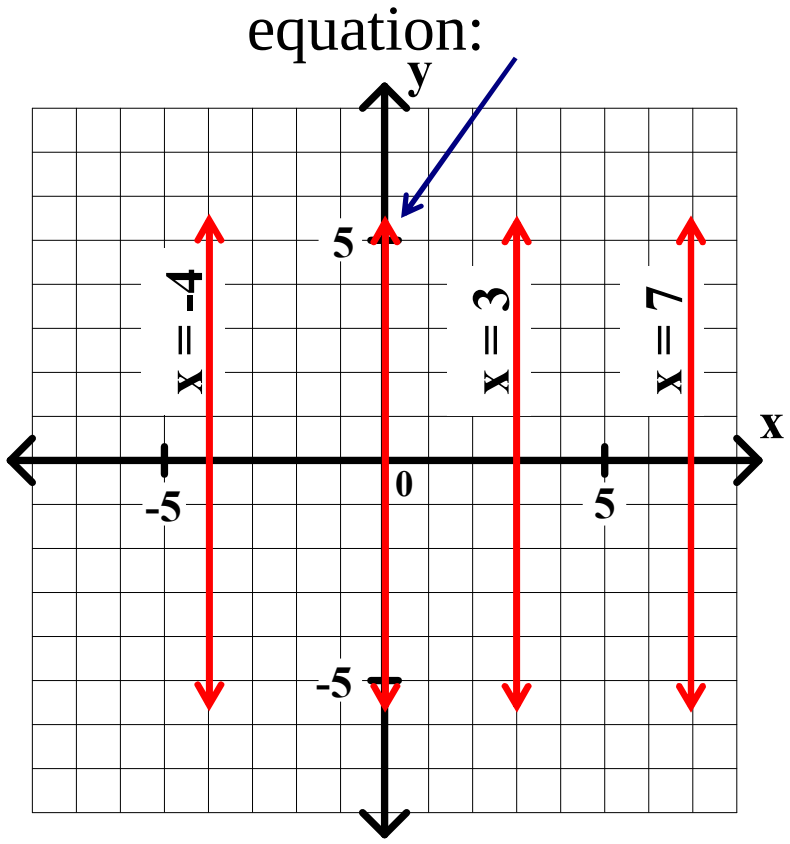

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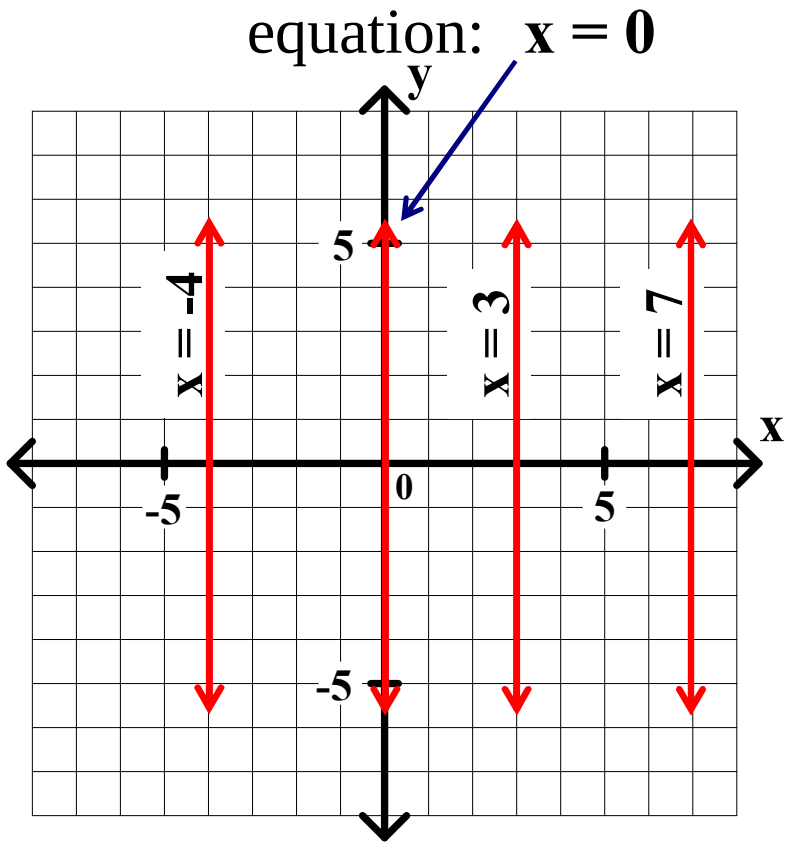

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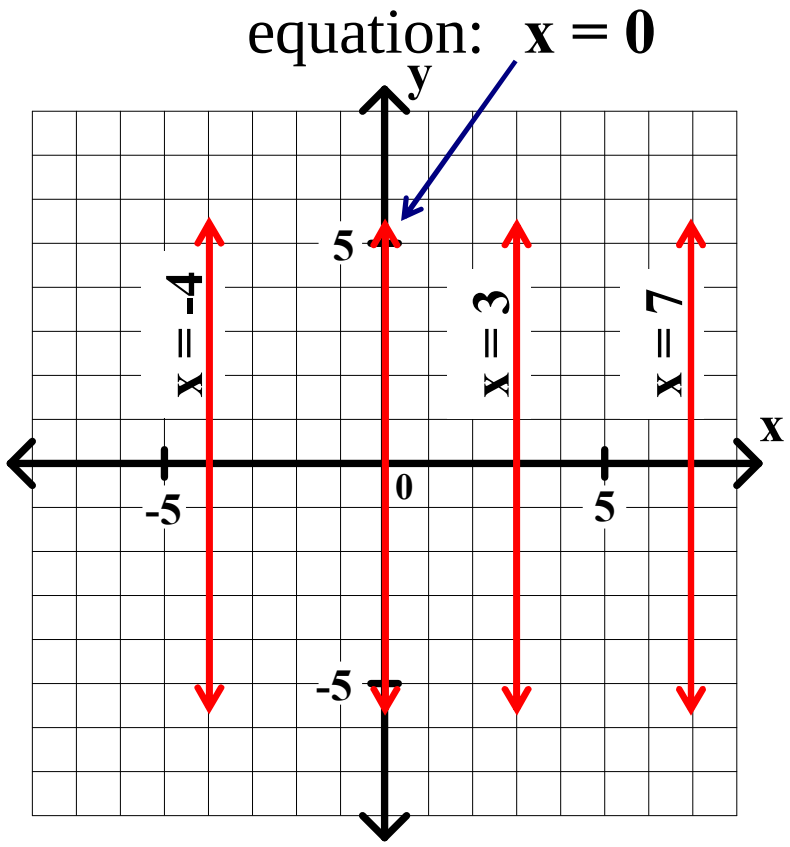
Every point on the y-axis has an x-coordinate equal to 0 !!!



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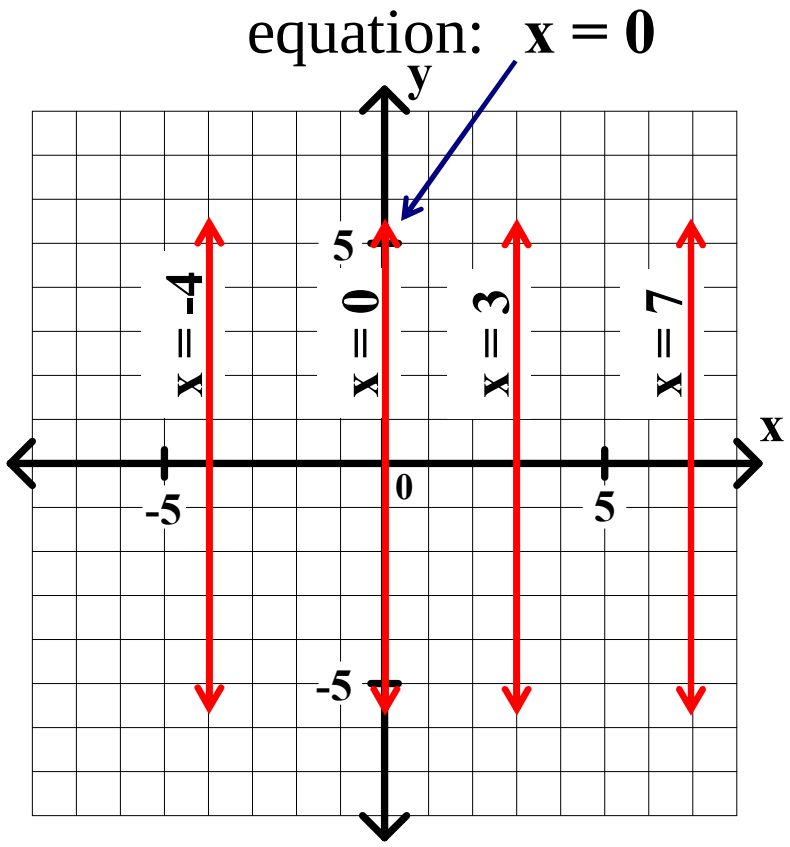

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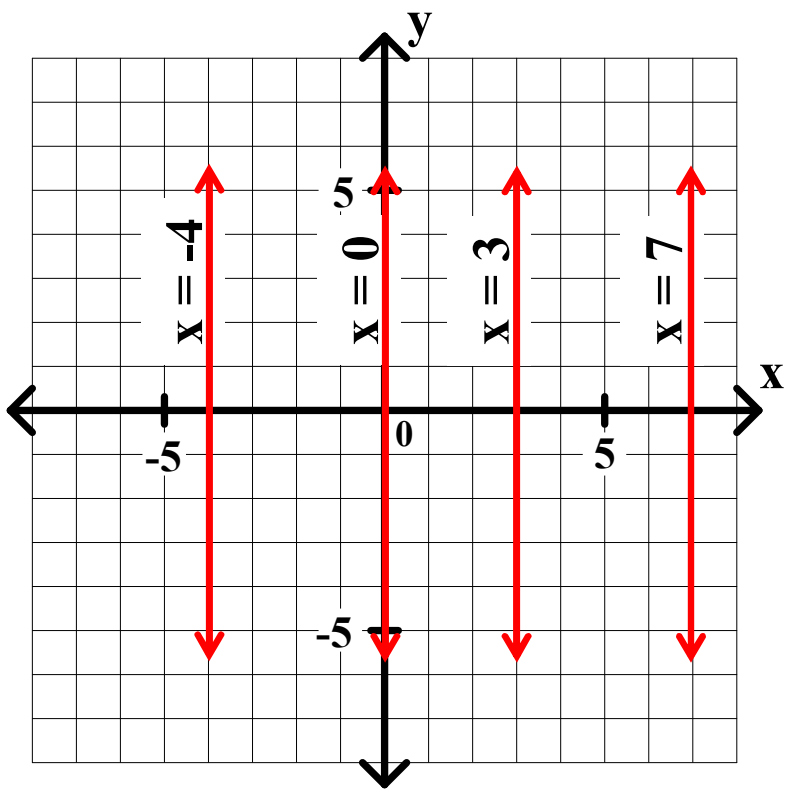

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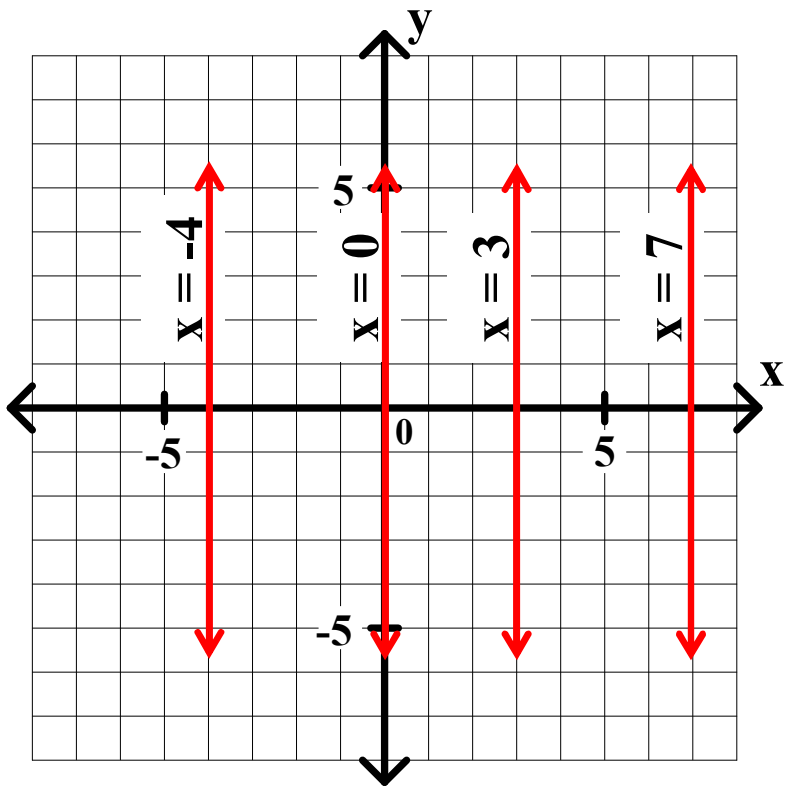

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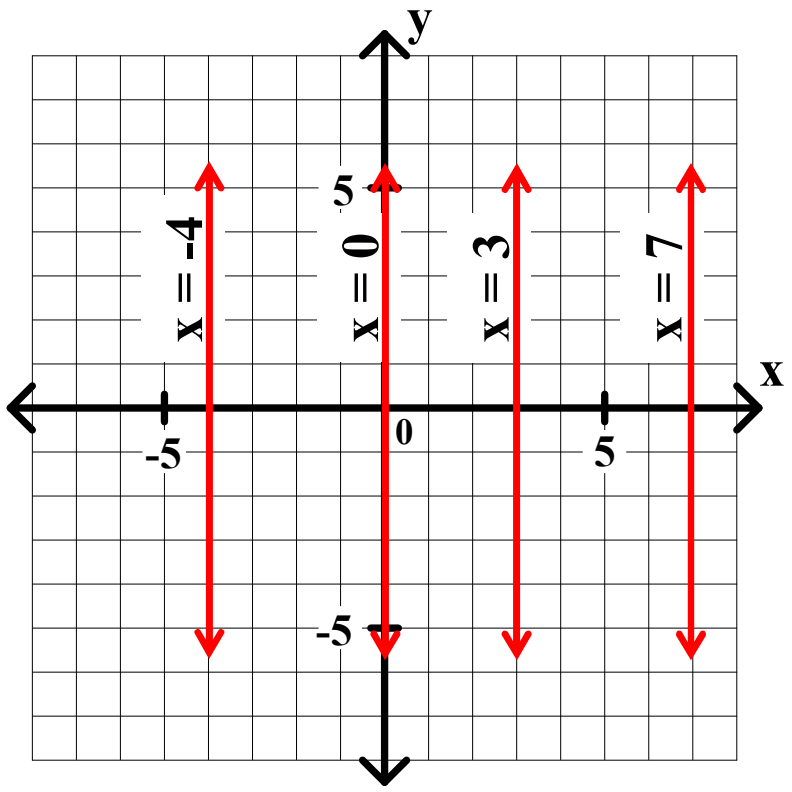

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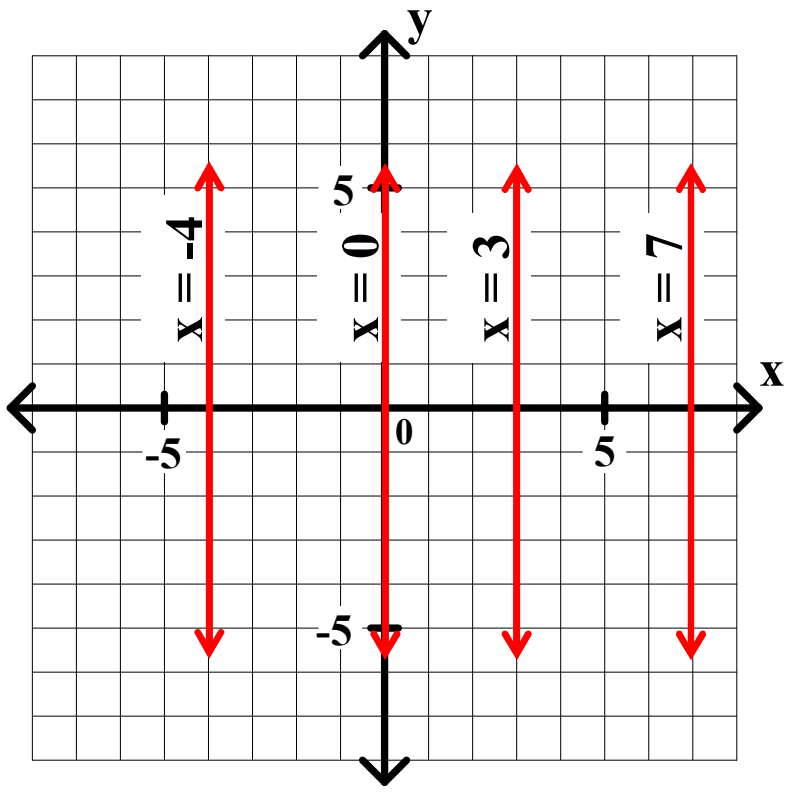

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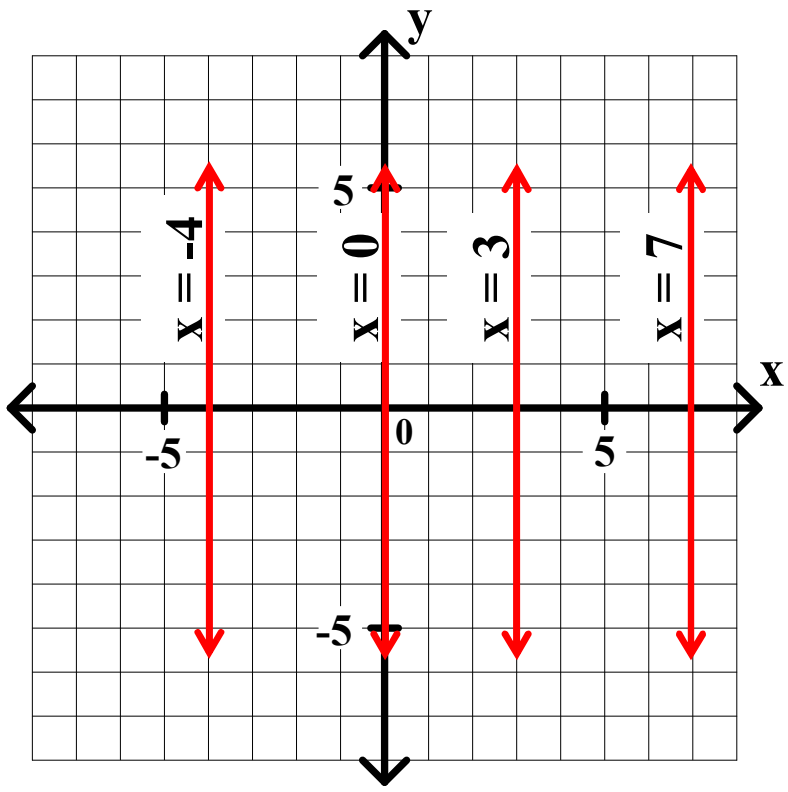

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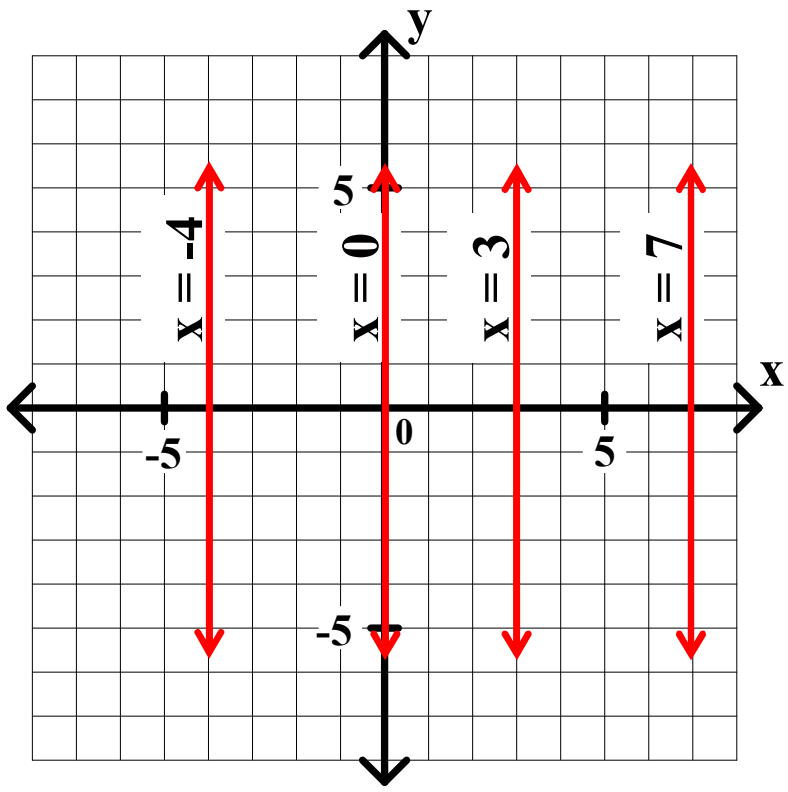
$$\text{Slope} = \frac{\text{Rise}}{\text{Run}}$$



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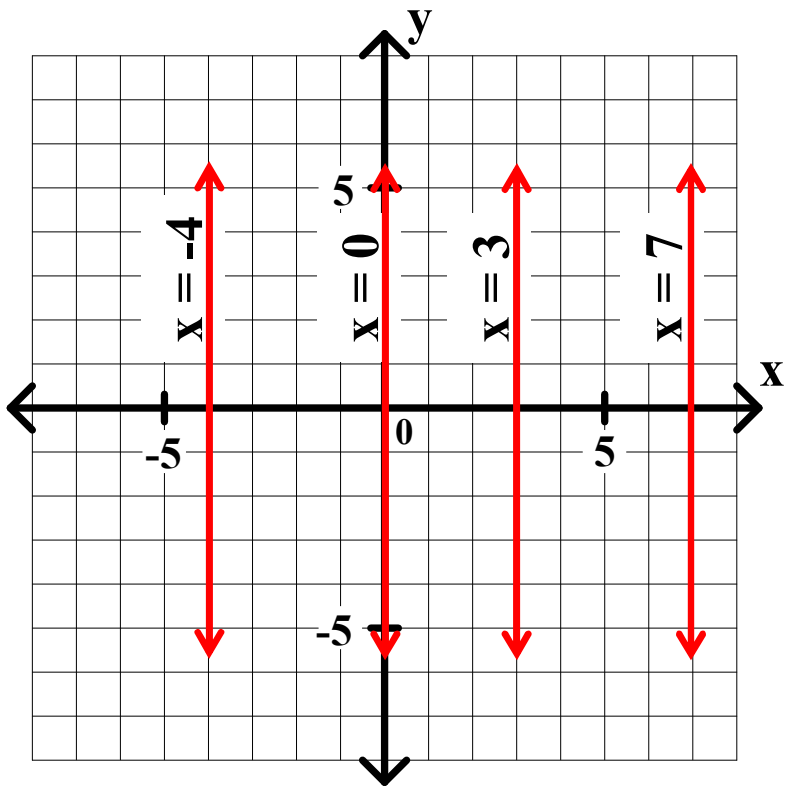
The **<u>run</u>** is 0 !!



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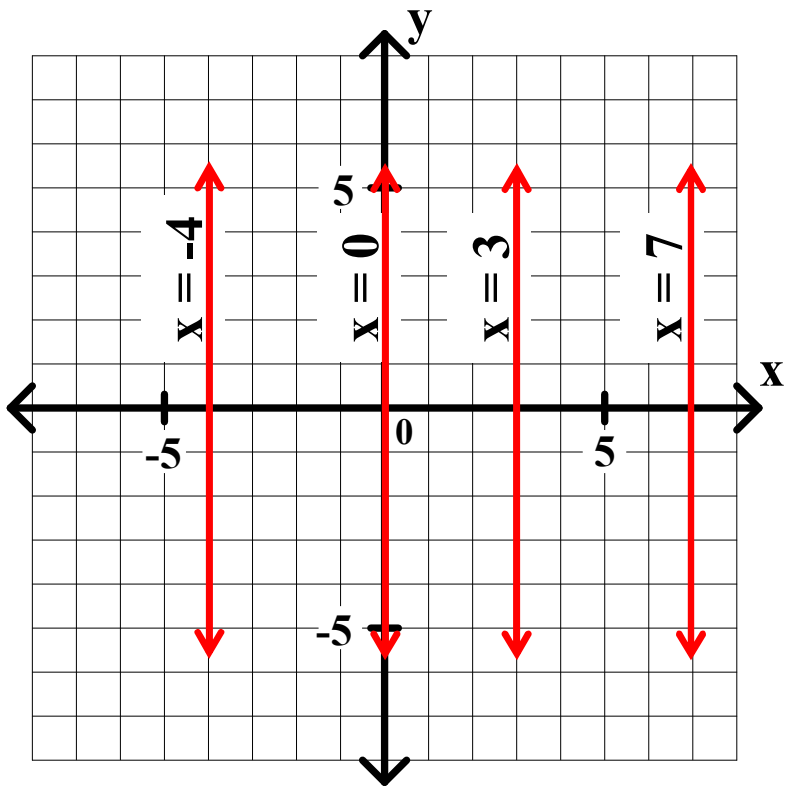

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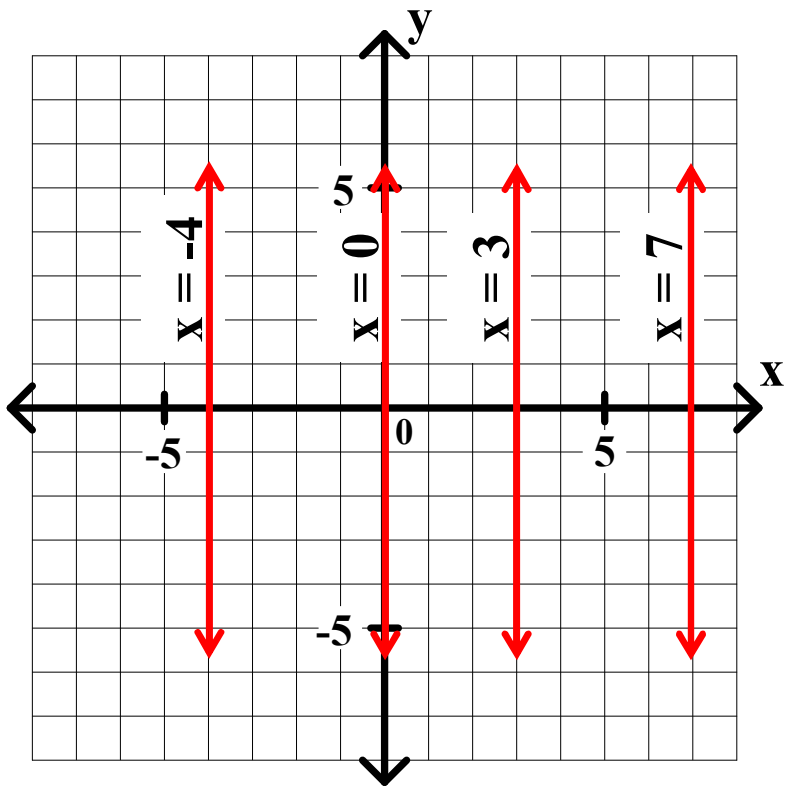

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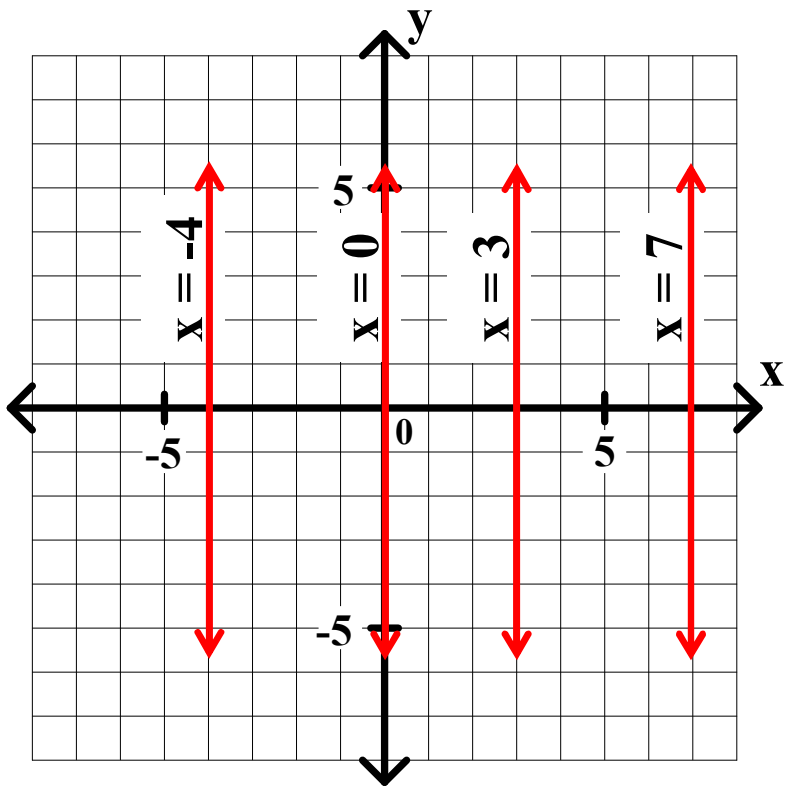

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$$\text{Slope} = \frac{\text{Rise}}{\text{Run}} = \frac{\text{Rise}}{0} = ?$$

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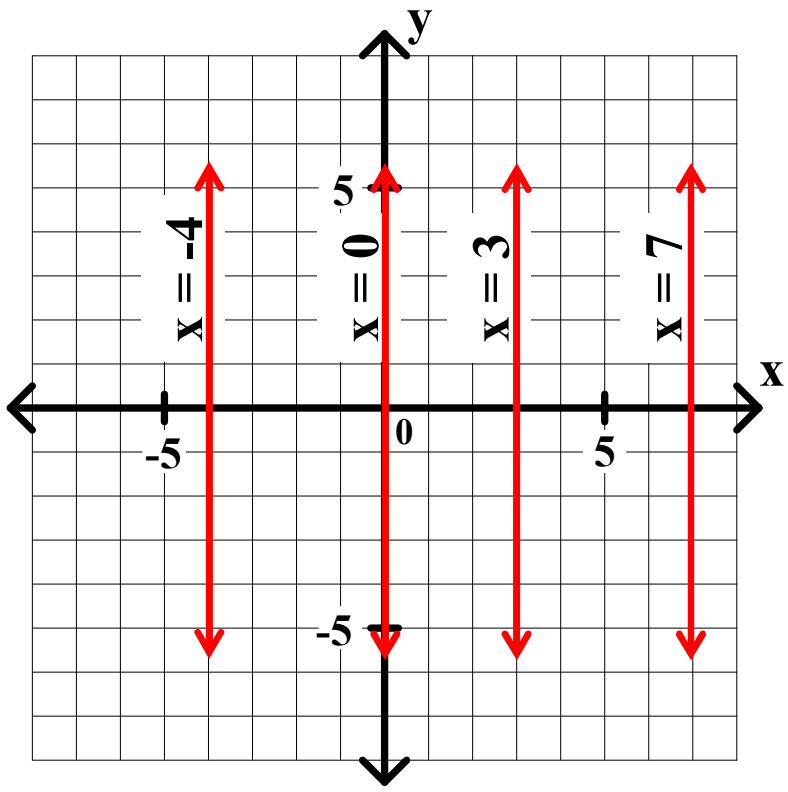

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Division by 0 is undefined !!

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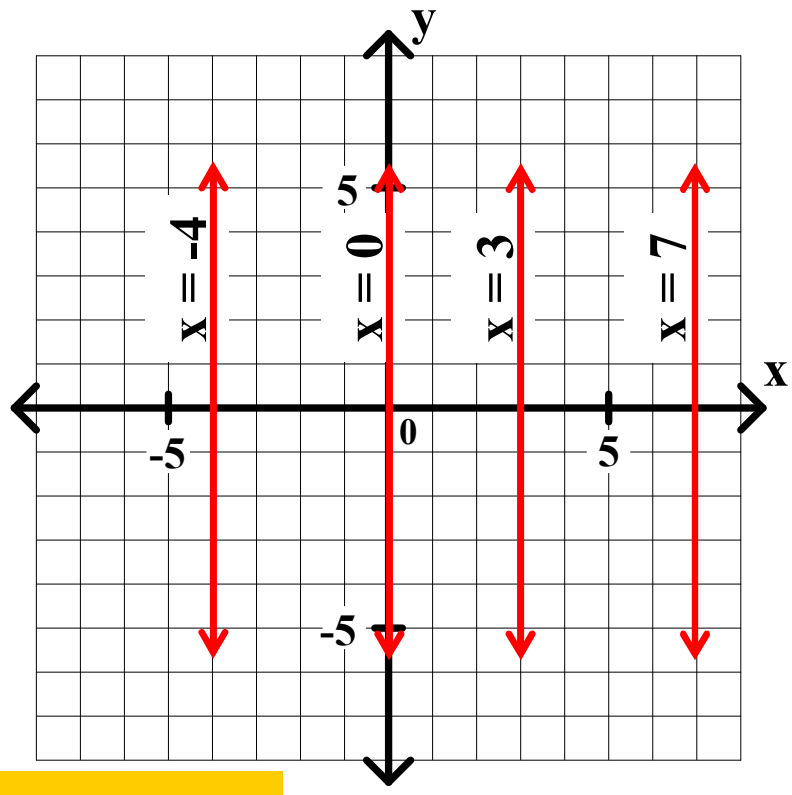

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The slope of every vertical line is undefined.

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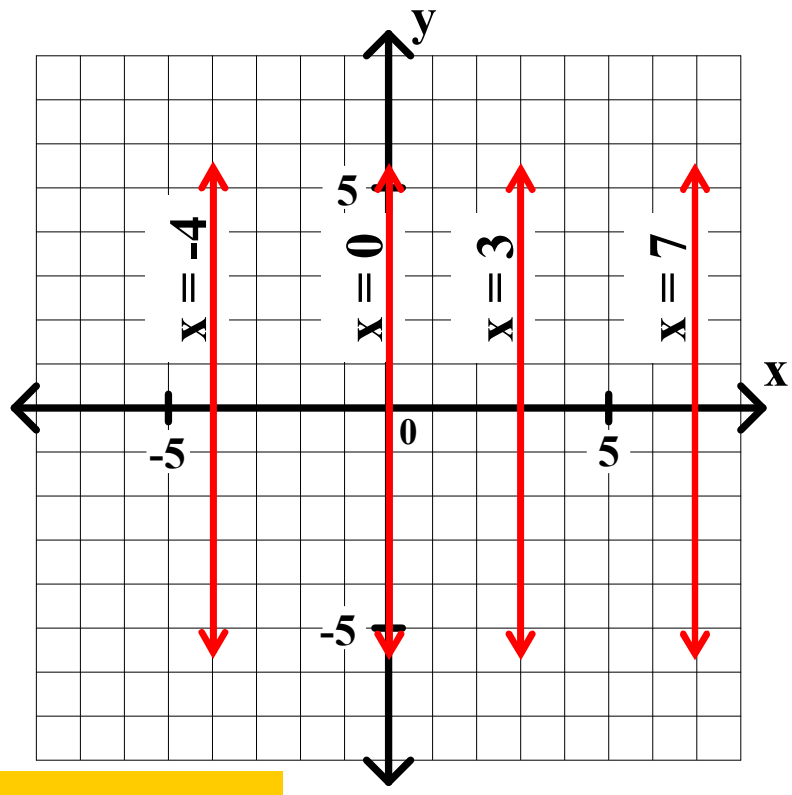

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Division by 0 is undefined !!

The slope of every vertical line is undefined.

It is common to say that a vertical line has **ãno slopeä**.

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

1. **The horizontal line through (2, 3). _____**

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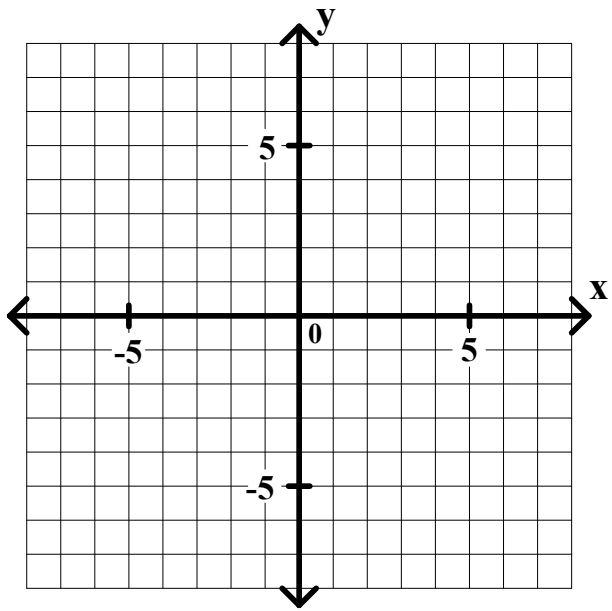

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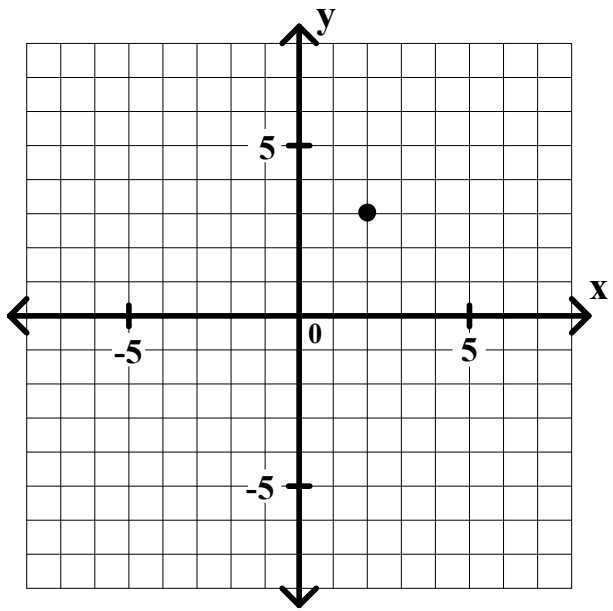

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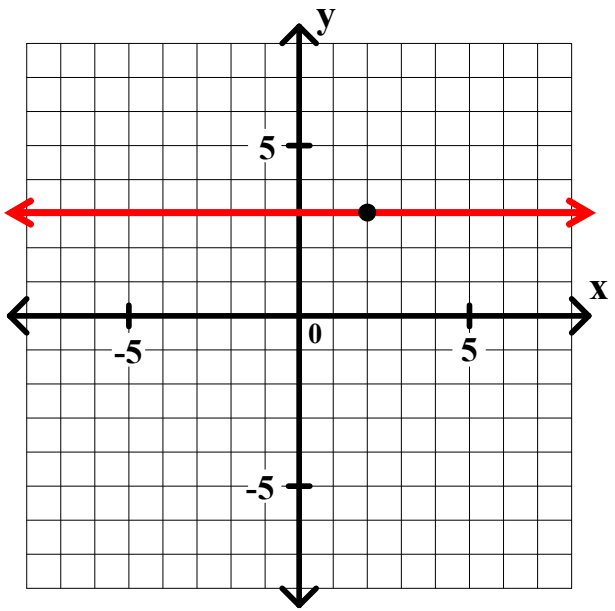

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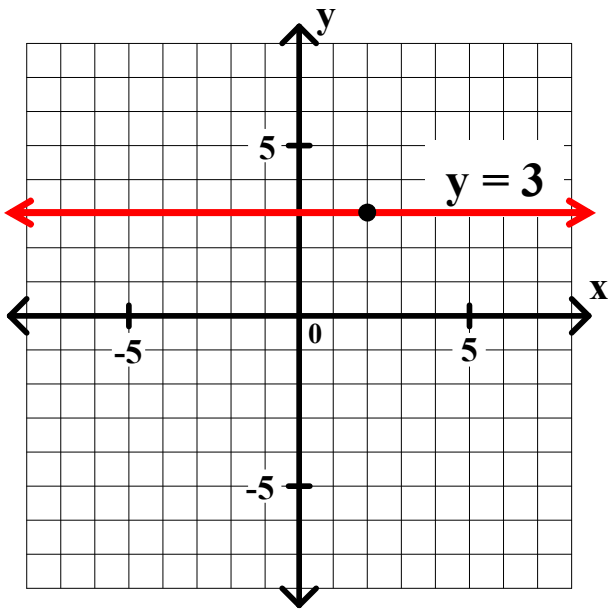

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

1. **The horizontal line through (2, 3).** y = 3

$y = k$

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

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   y = k

2. **The vertical line through (2, 3).** _____

Algebra I Class Worksheet #1 Unit 7

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Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

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   x = k

Algebra I Class Worksheet #1 Unit 7

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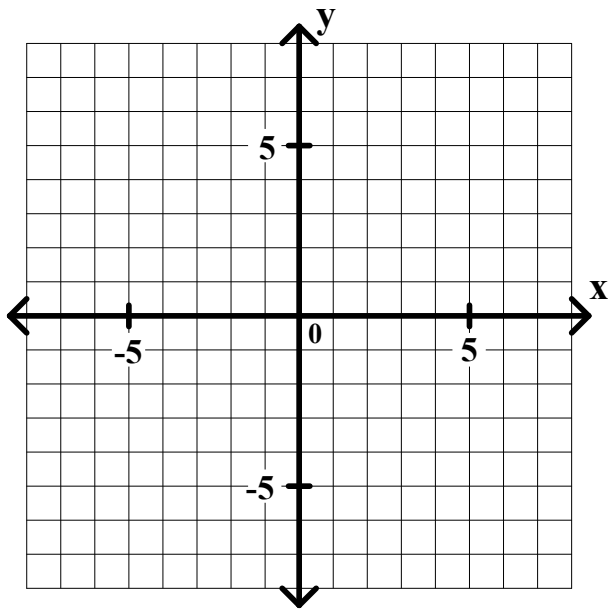

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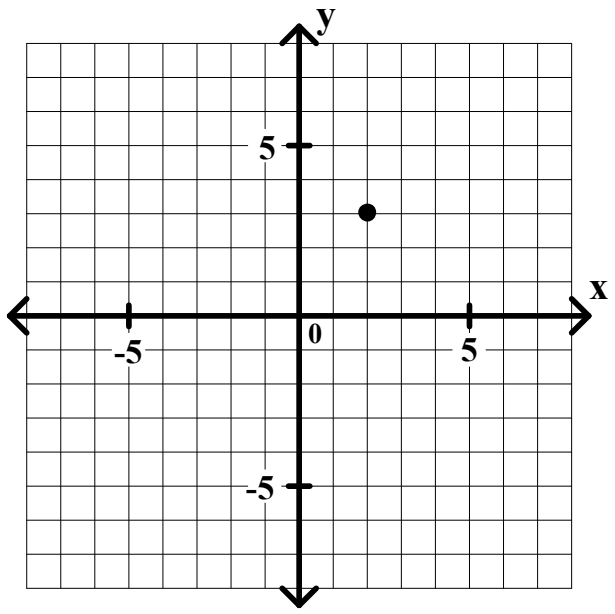

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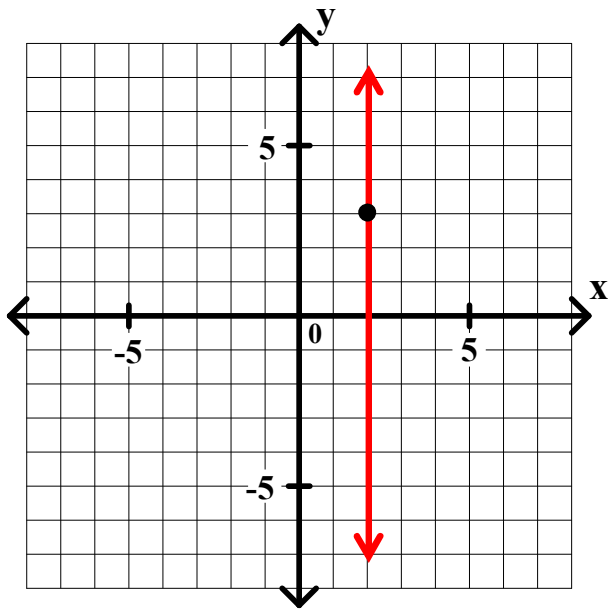

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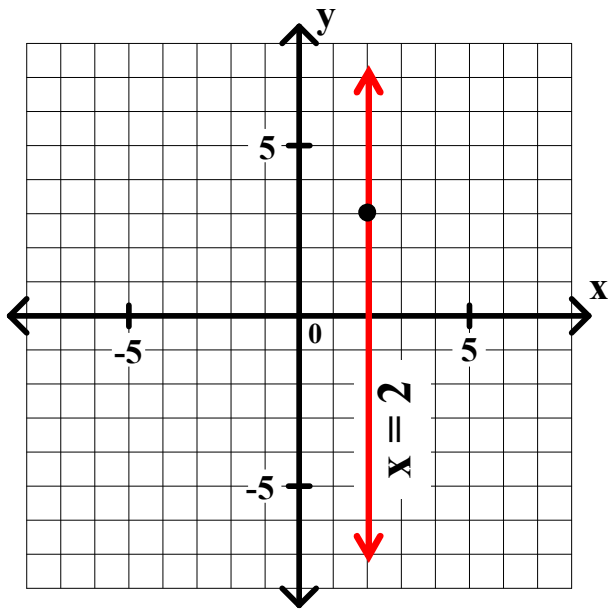

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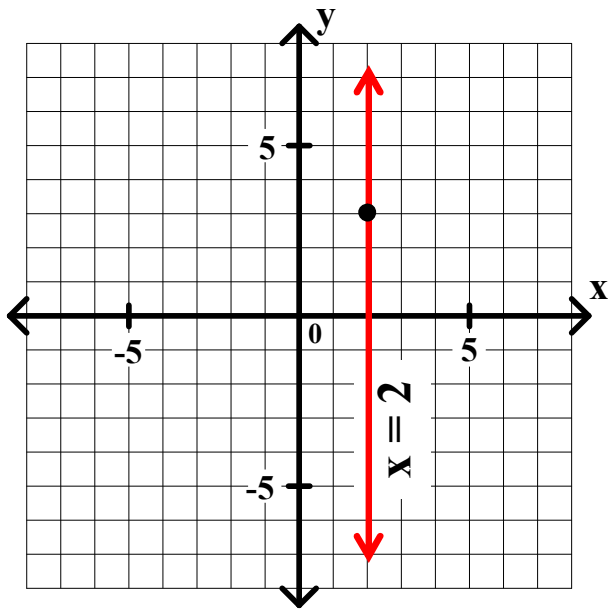

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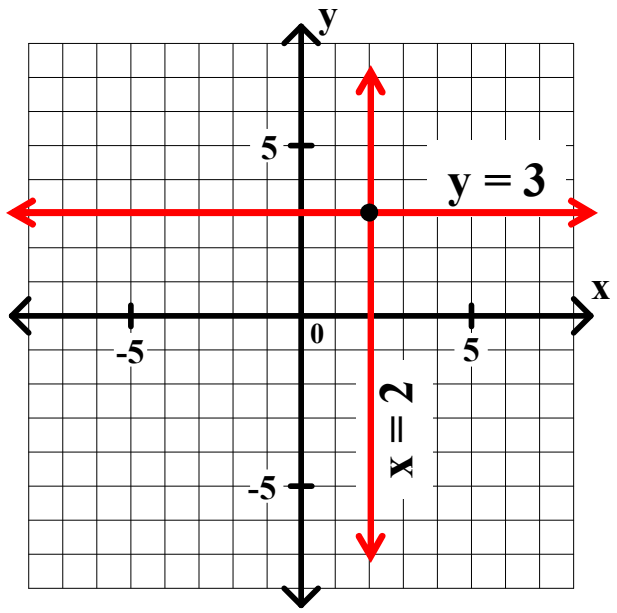

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

3. The line through (-3, 5) with slope 0. _____

Algebra I Class Worksheet #1 Unit 7

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Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

3. The line through (-3, 5) with slope 0. _____

horizontal line

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

3. The line through (-3, 5) with slope 0. _____

horizontal line ⟹ y = k

Algebra I Class Worksheet #1 Unit 7

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horizontal line → y = k

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

3. The line through (-3, 5) with slope 0. **y = 5**

horizontal line → **y = k**

Algebra I Class Worksheet #1 Unit 7

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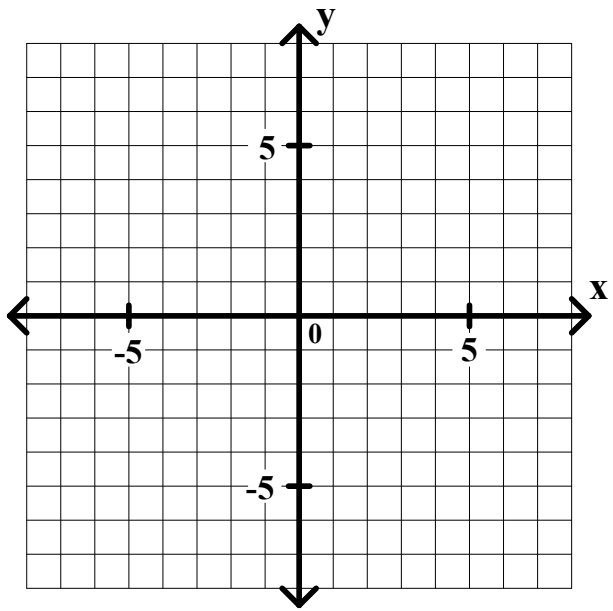

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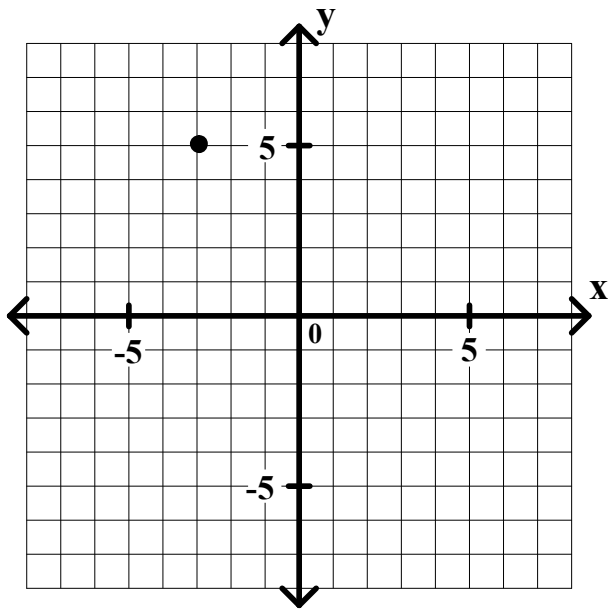

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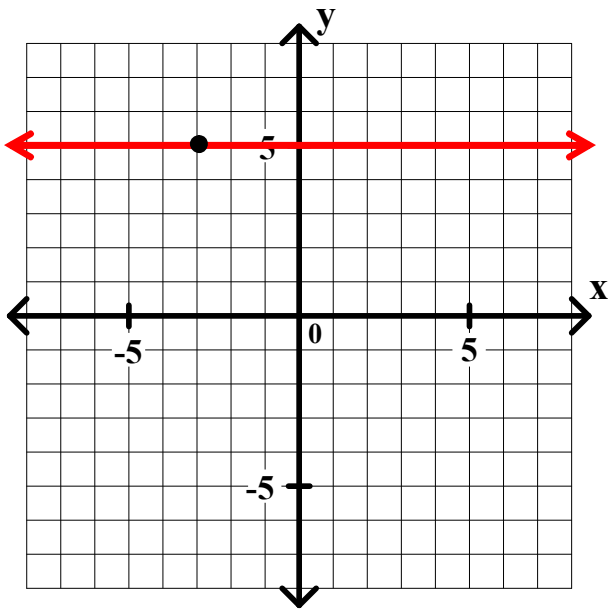

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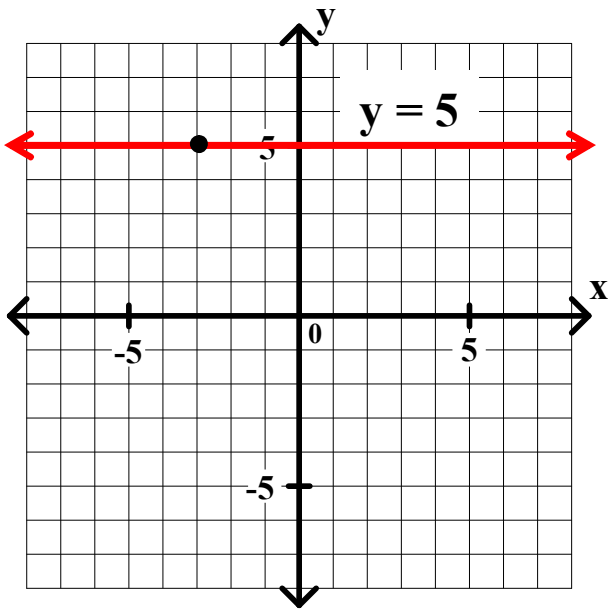

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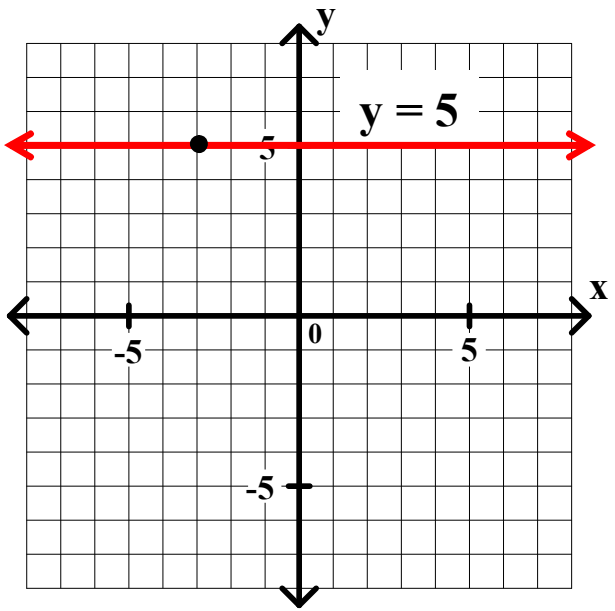

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'no slope' ⟹

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'no slope' ⟹ vertical line

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

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'no slope' ⟹ vertical line

The slope is undefined !!

Algebra I Class Worksheet #1 Unit 7

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'no slope' ⟹ vertical line ⟹ x = k

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'no slope' → vertical line → x = k

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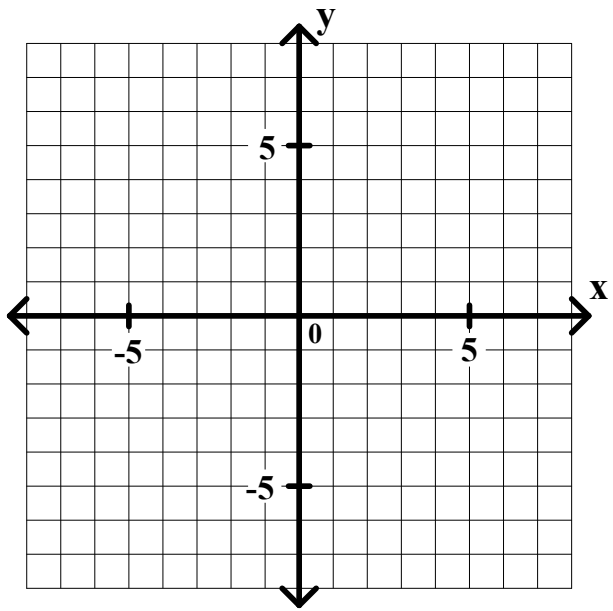

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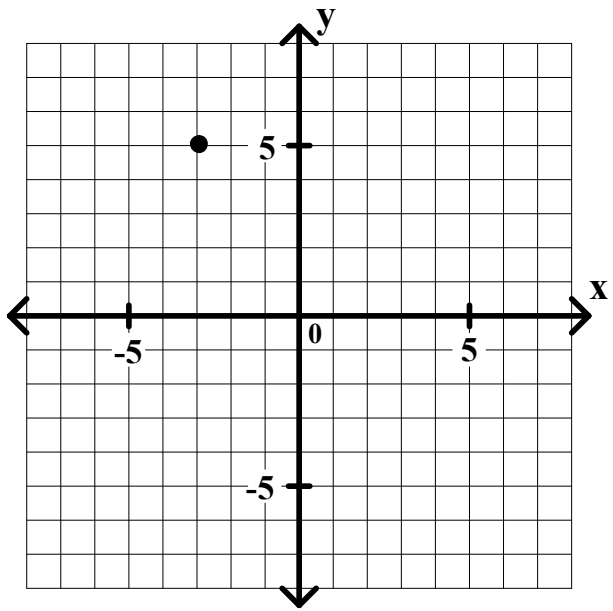

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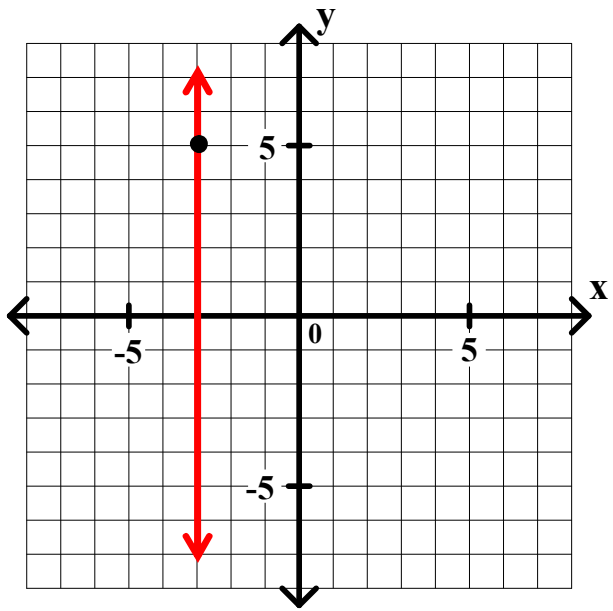

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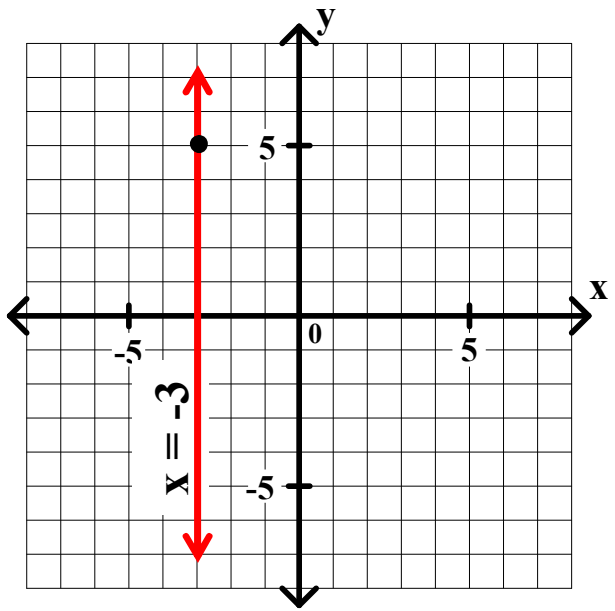

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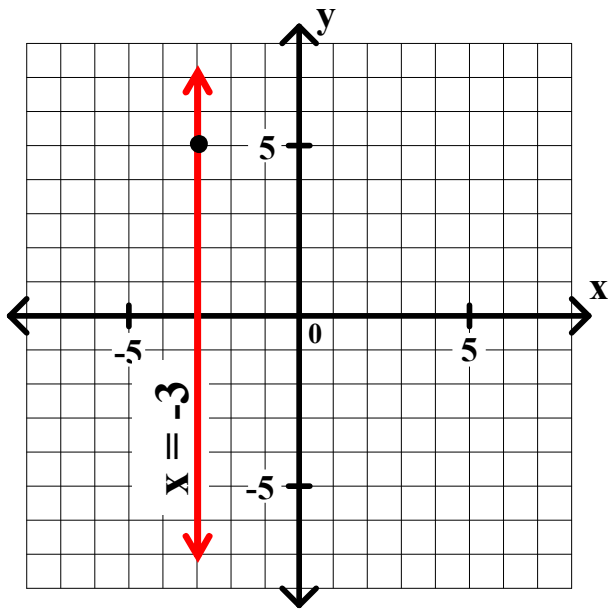

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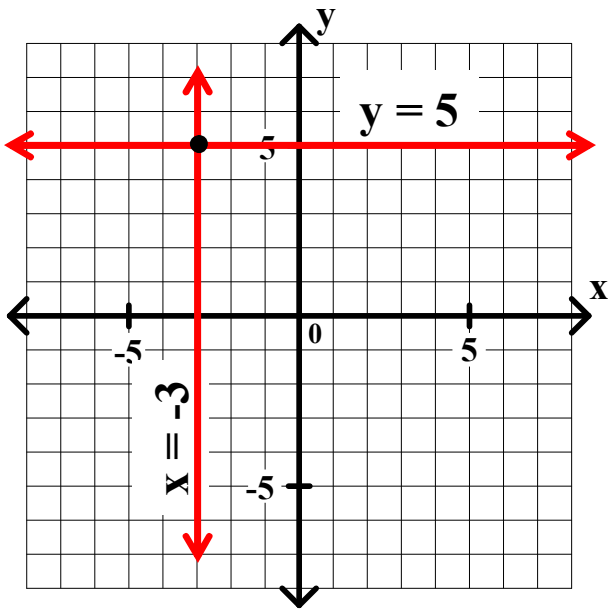

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

5. The line through (-2, -4) and (3, -4). _____

Algebra I Class Worksheet #1 Unit 7

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Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

5. The line through (-2, -4) and (3, -4). _____

horizontal line

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

5. The line through (-2, -4) and (3, -4). _____

horizontal line → y = k

Algebra I Class Worksheet #1 Unit 7

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horizontal line → y = k

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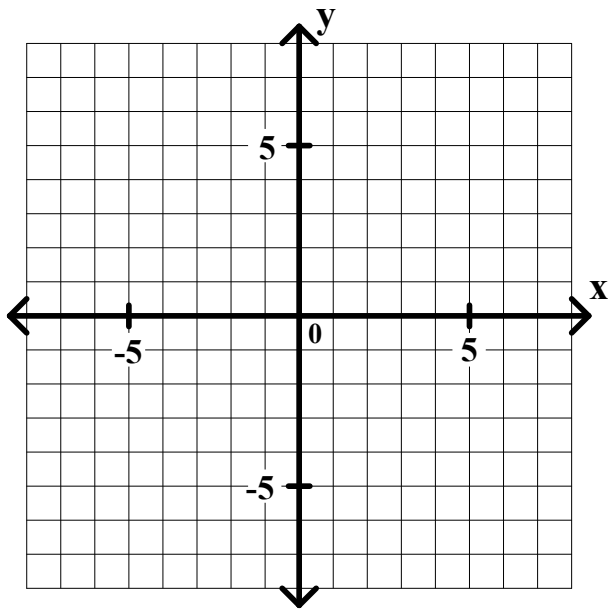

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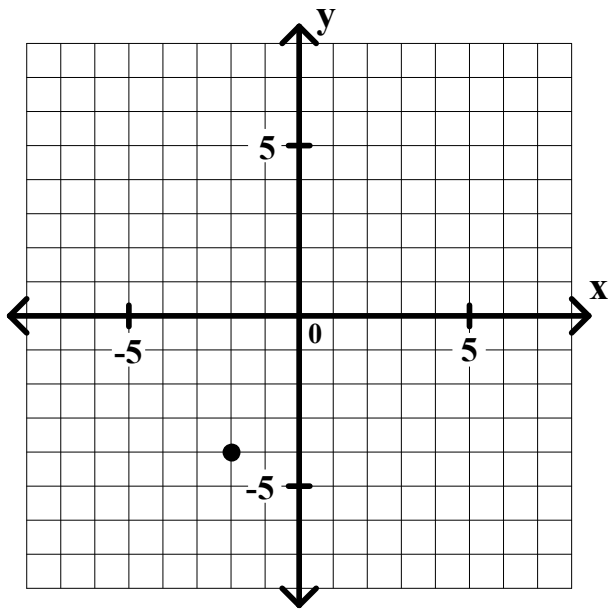

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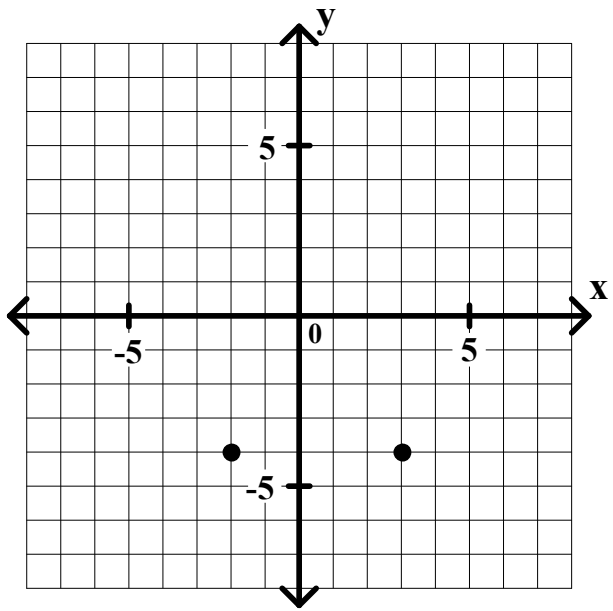

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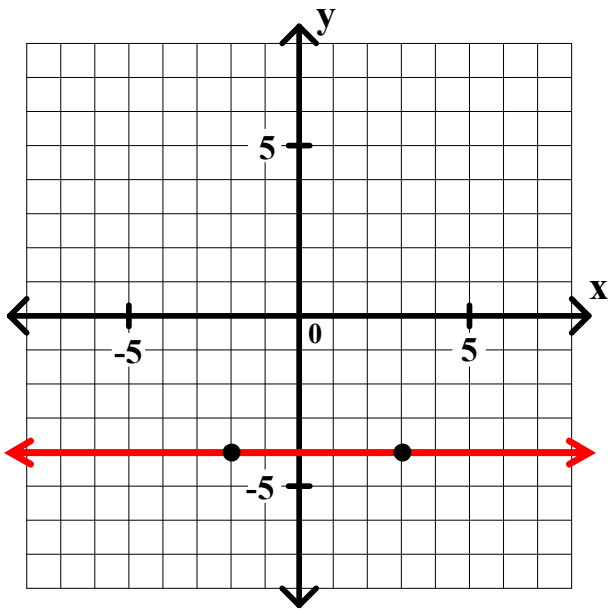

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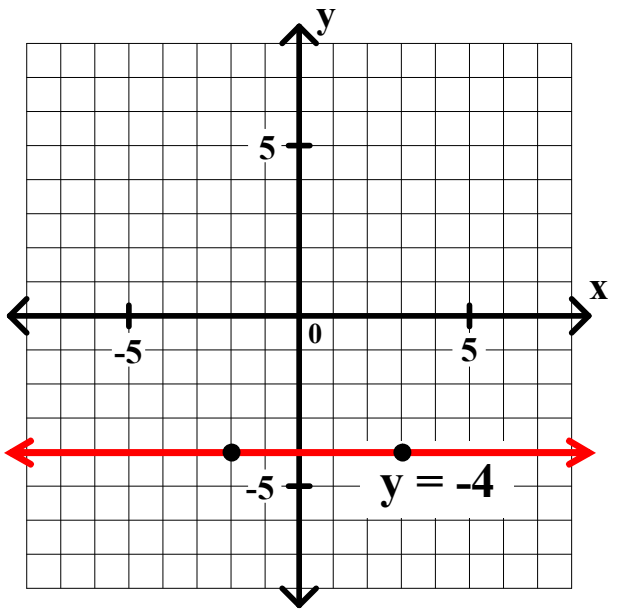

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6. **The line through (-2, -4) and (-2, 5).** _____

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Algebra I Class Worksheet #1 Unit 7

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   vertical line

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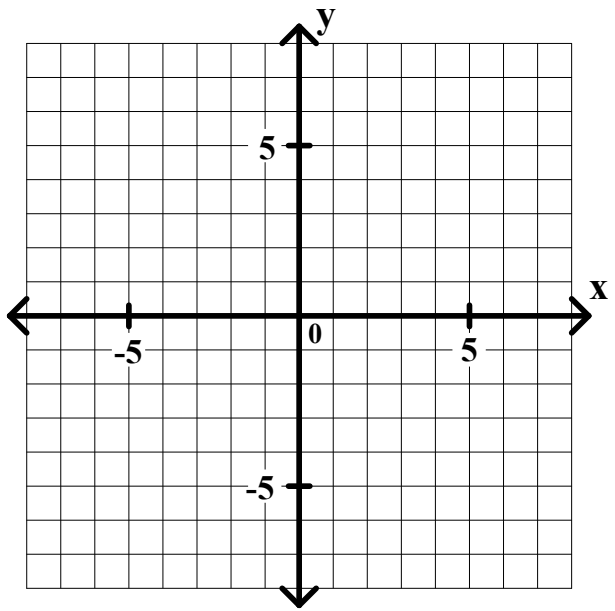

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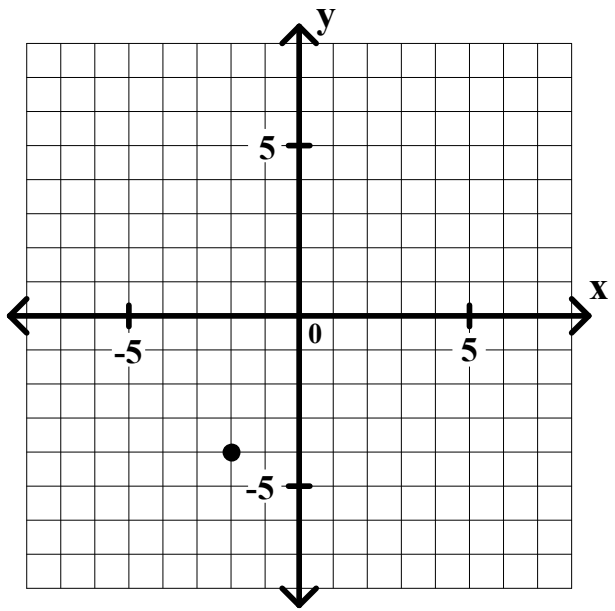

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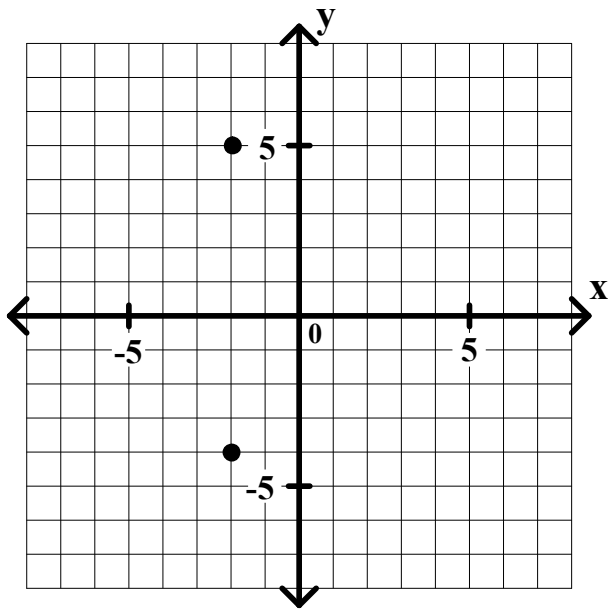

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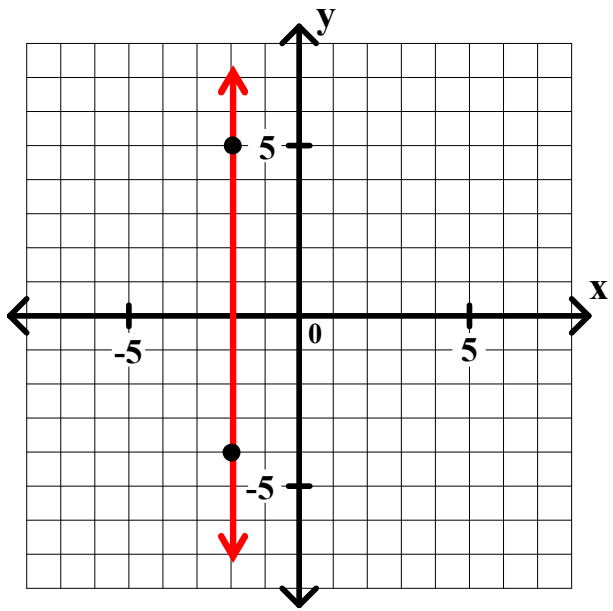

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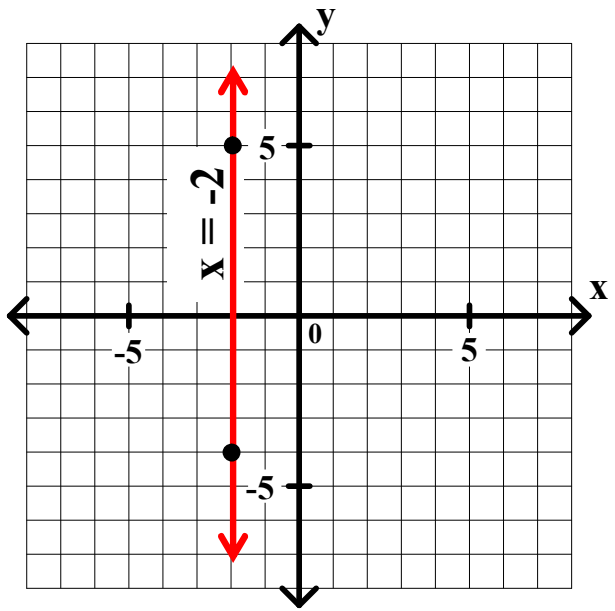

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines.

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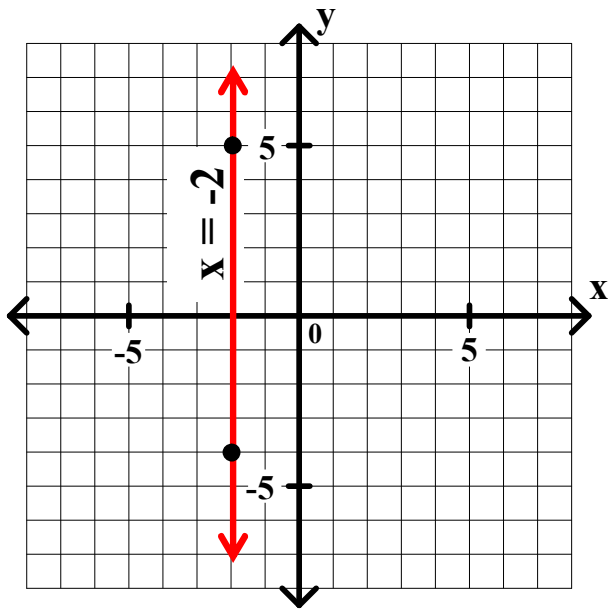

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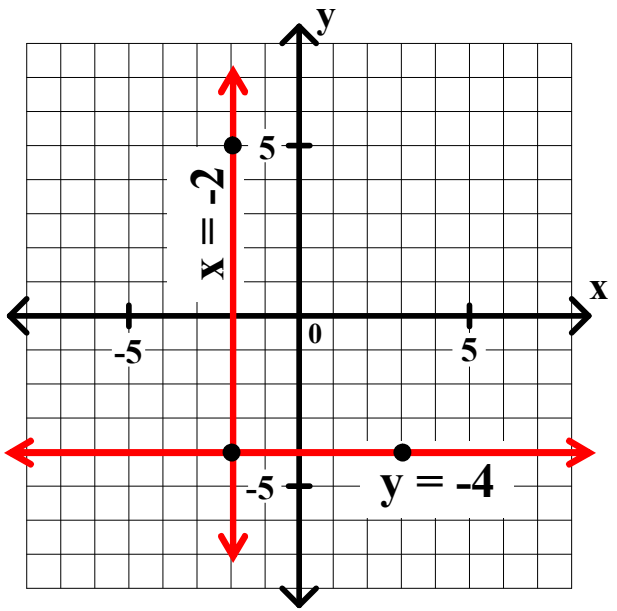

Algebra I Unit 7 The Equation of a Line

Oblique Lines

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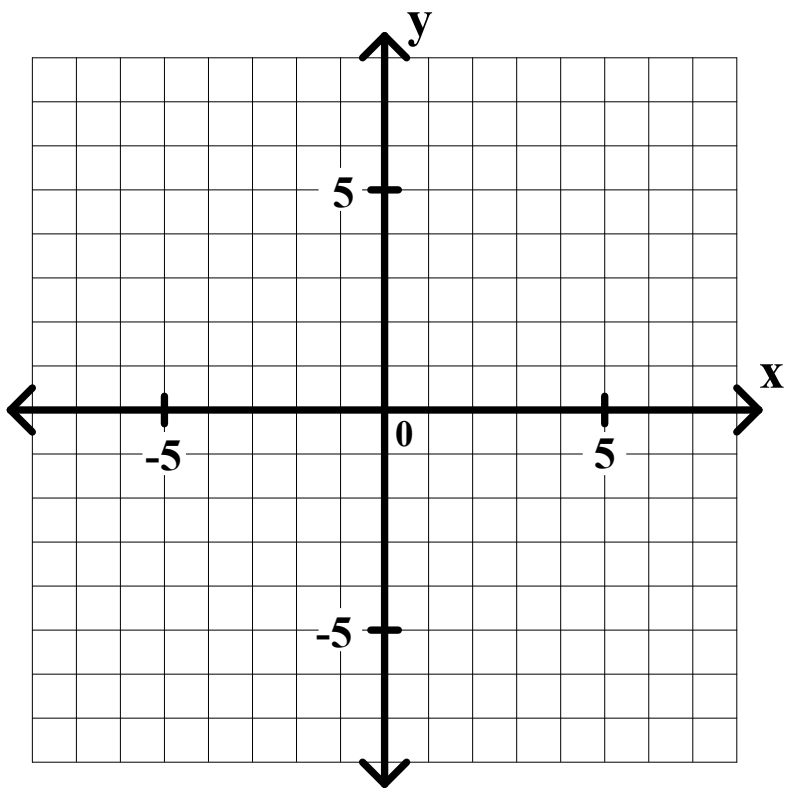

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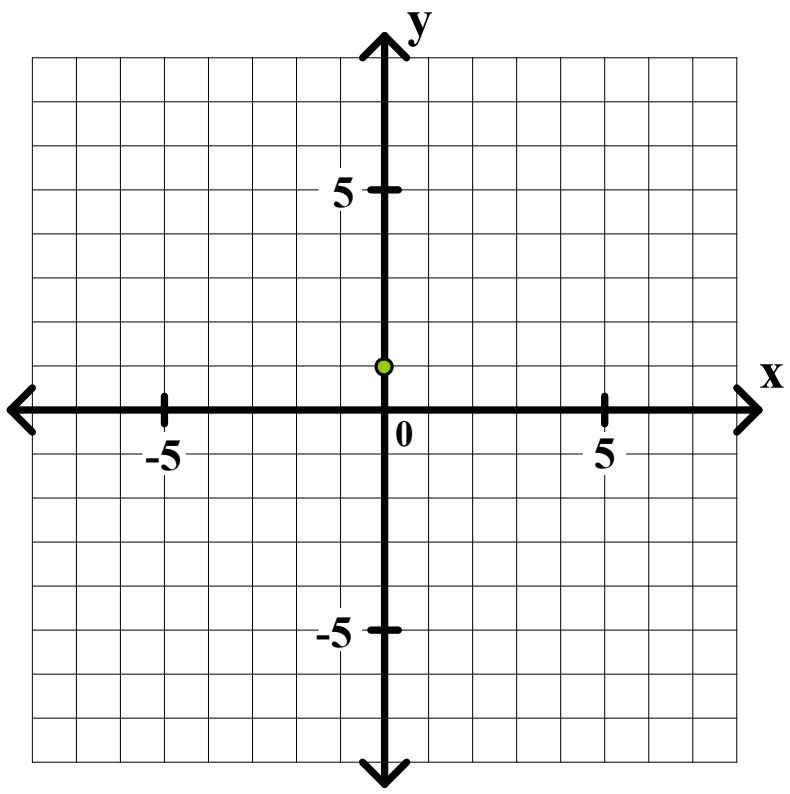

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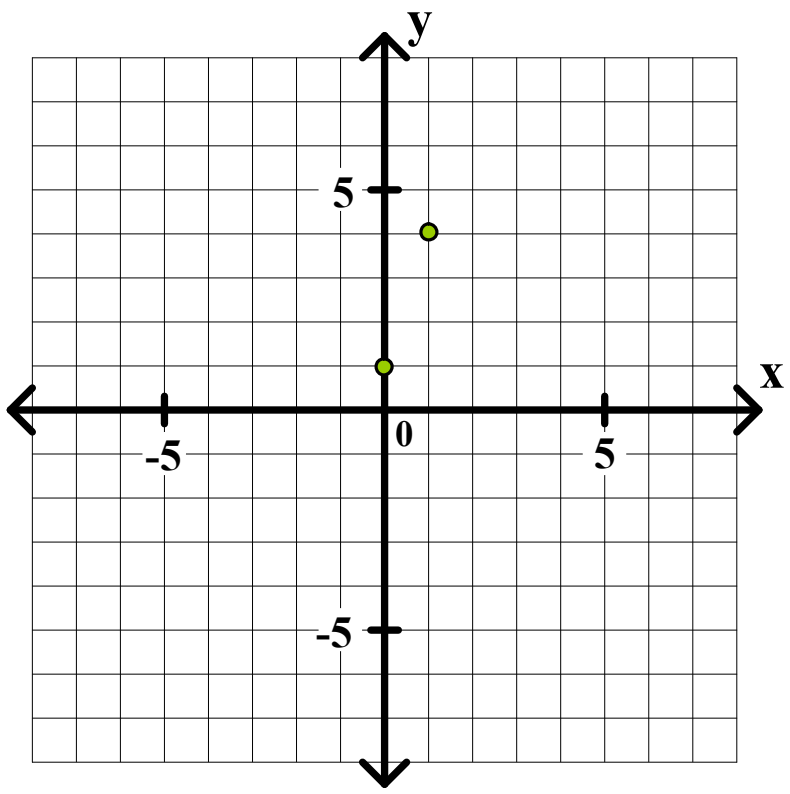

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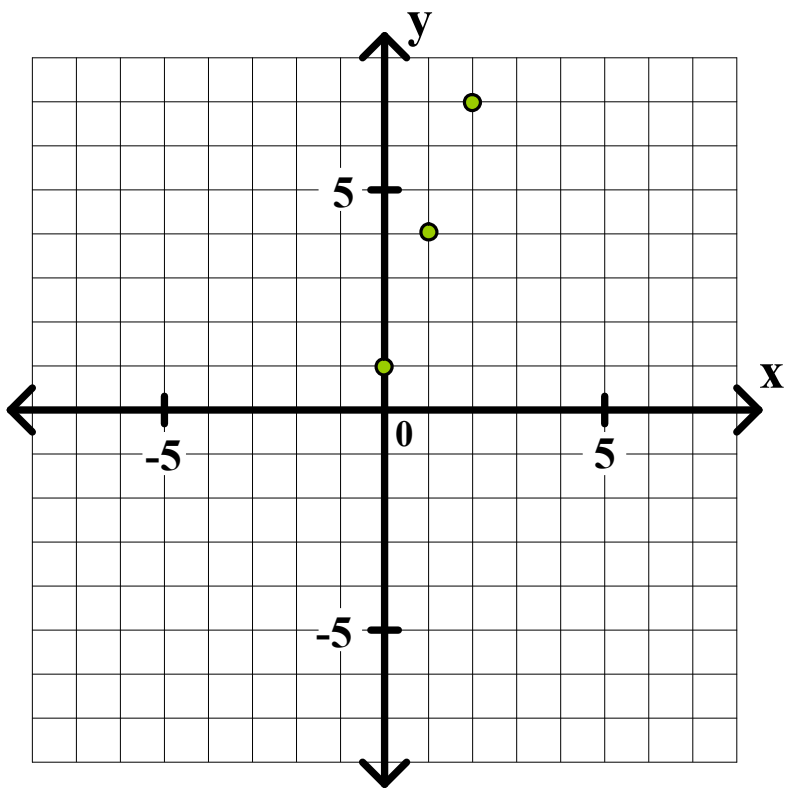

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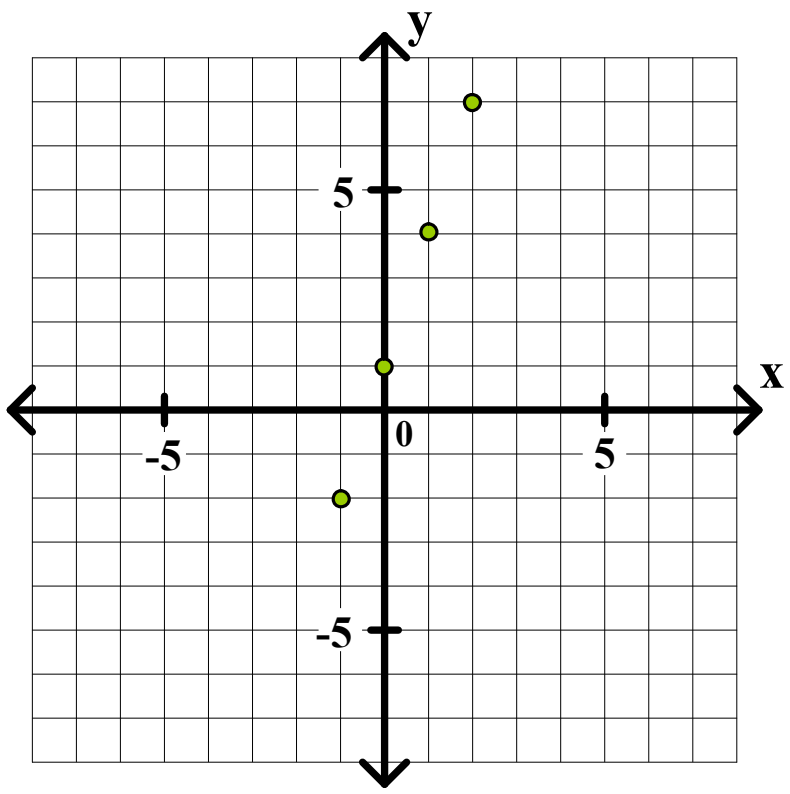

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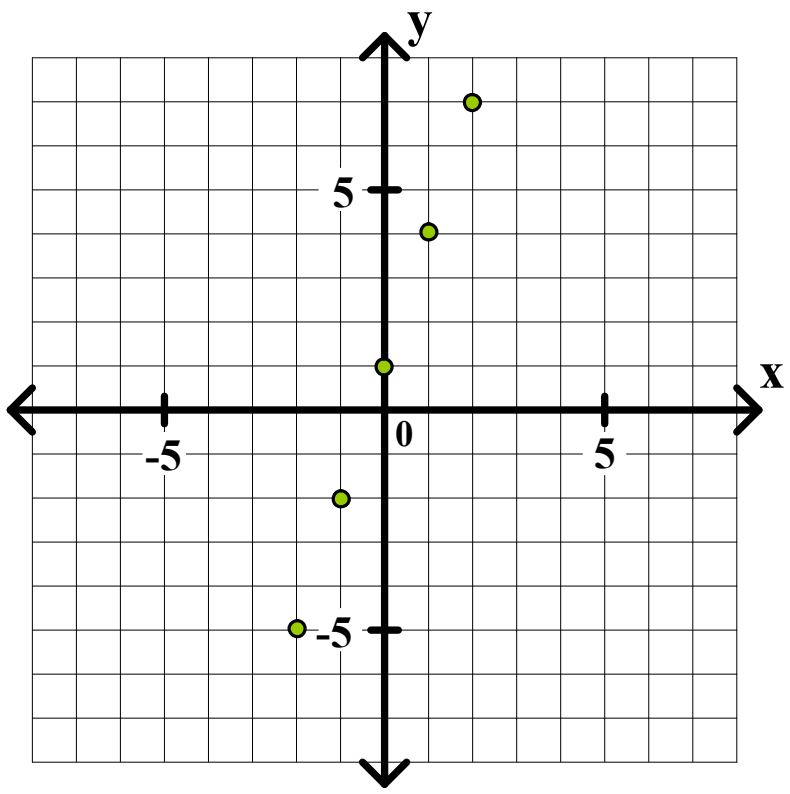

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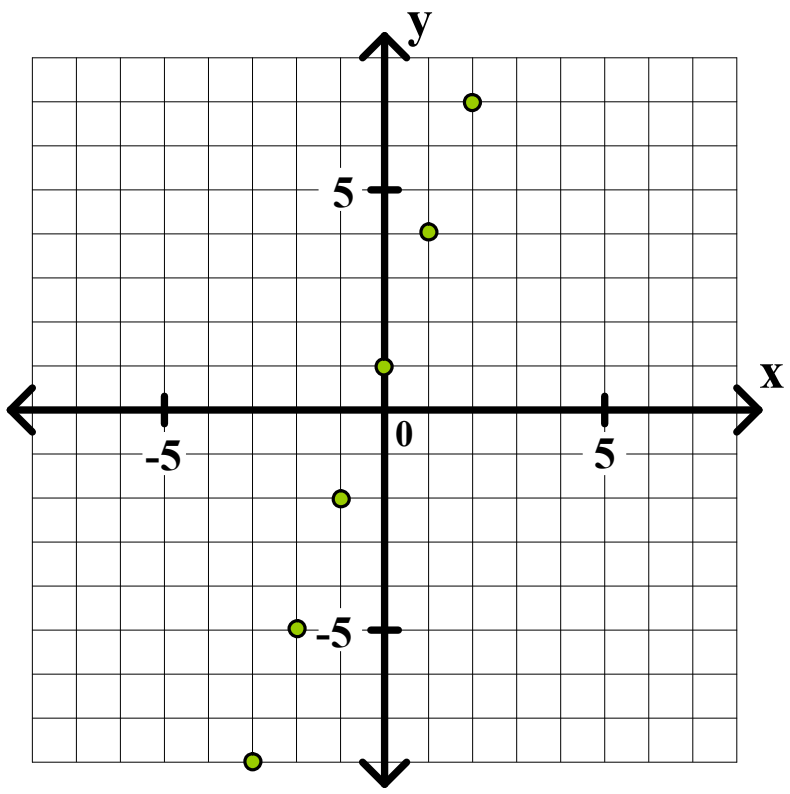

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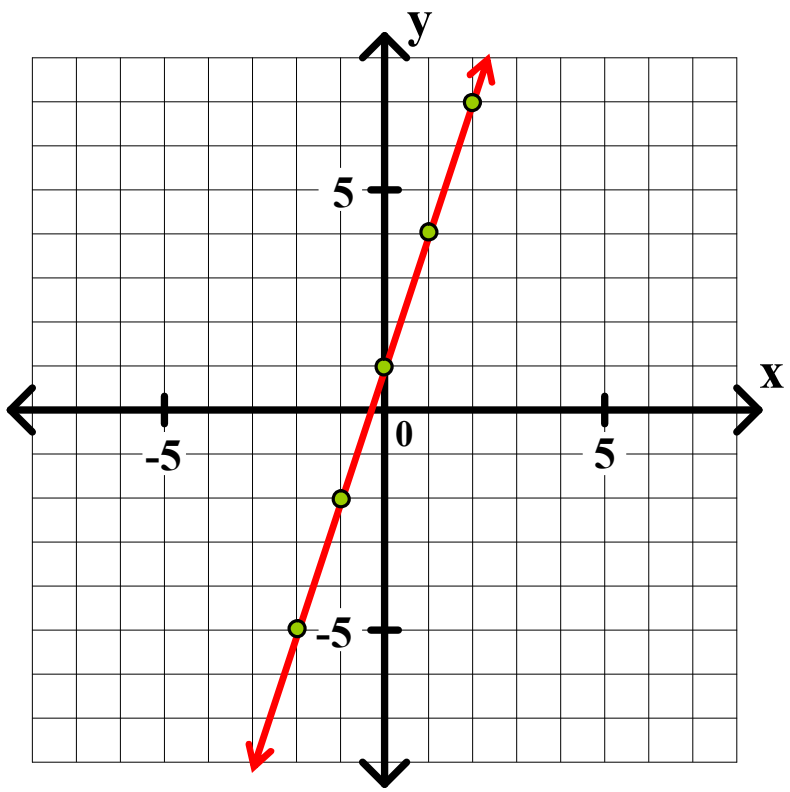

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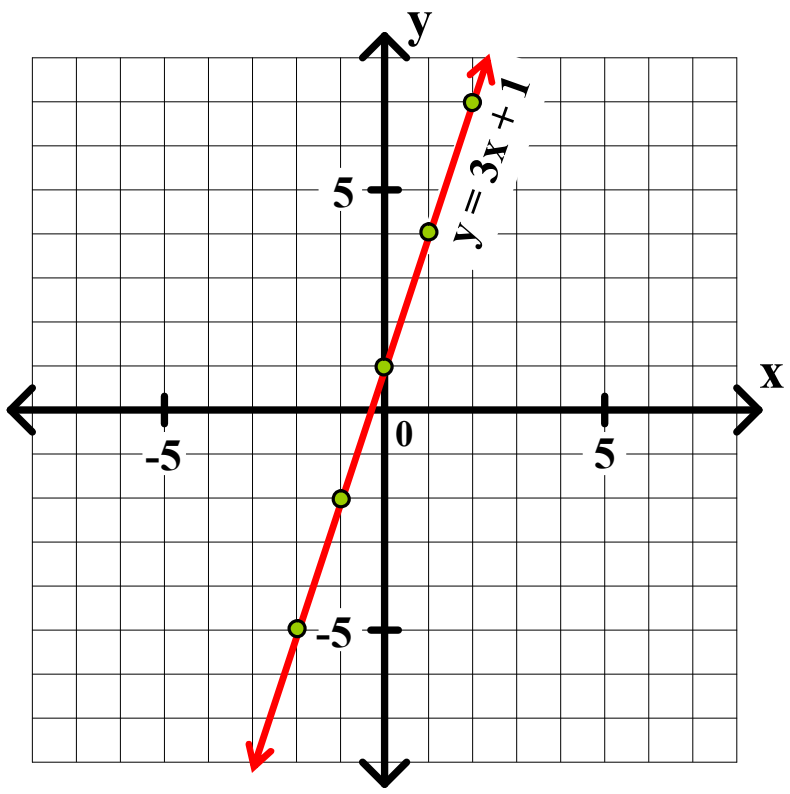

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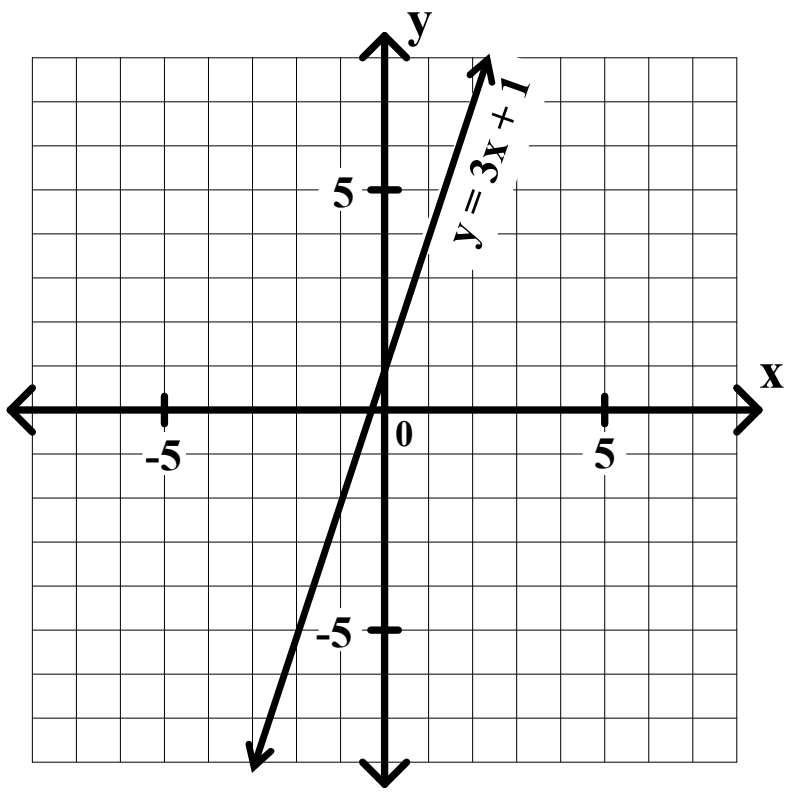

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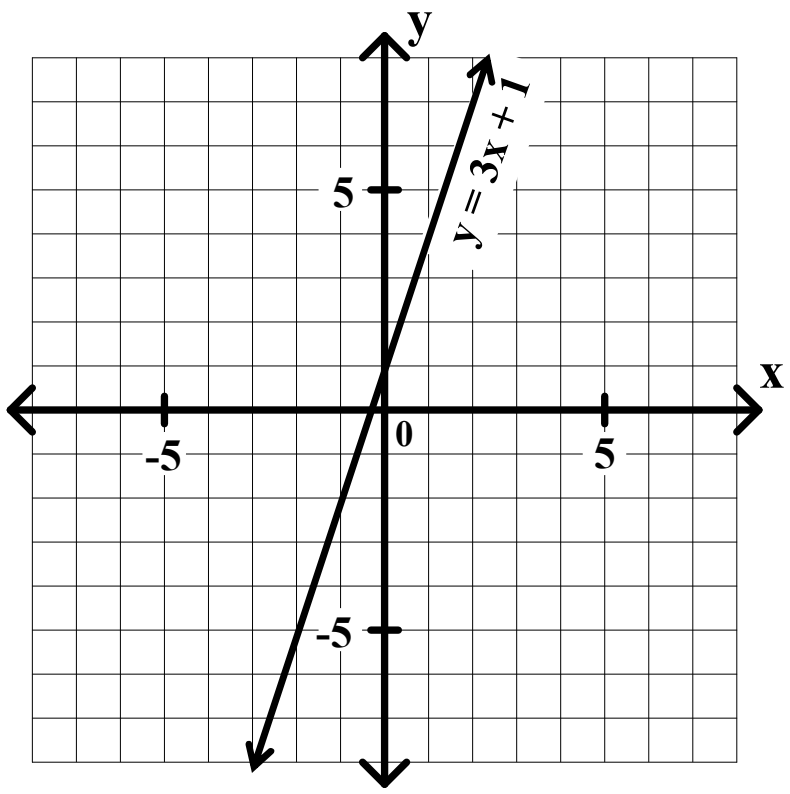

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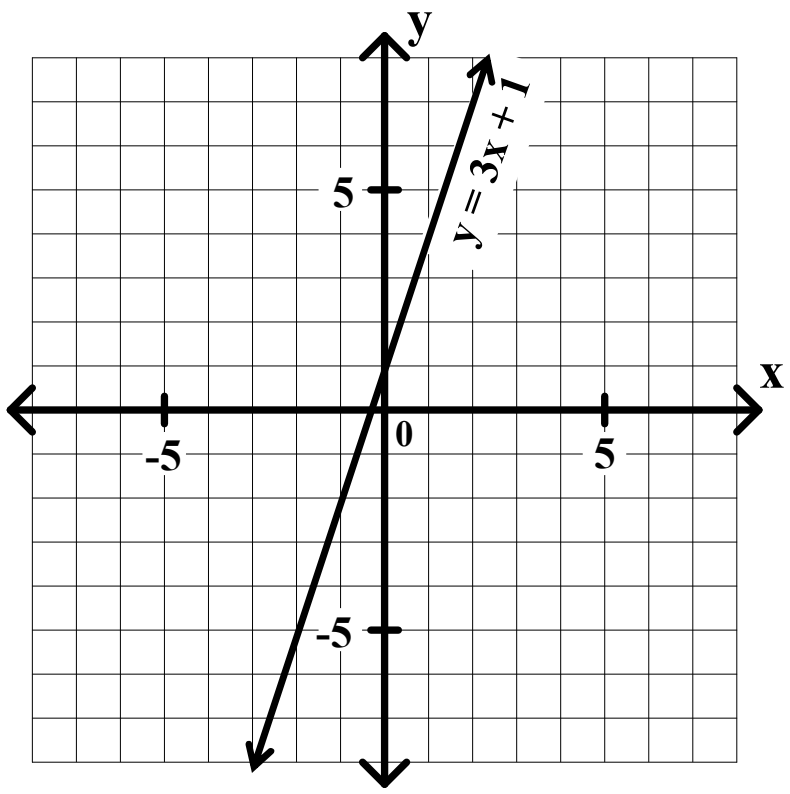

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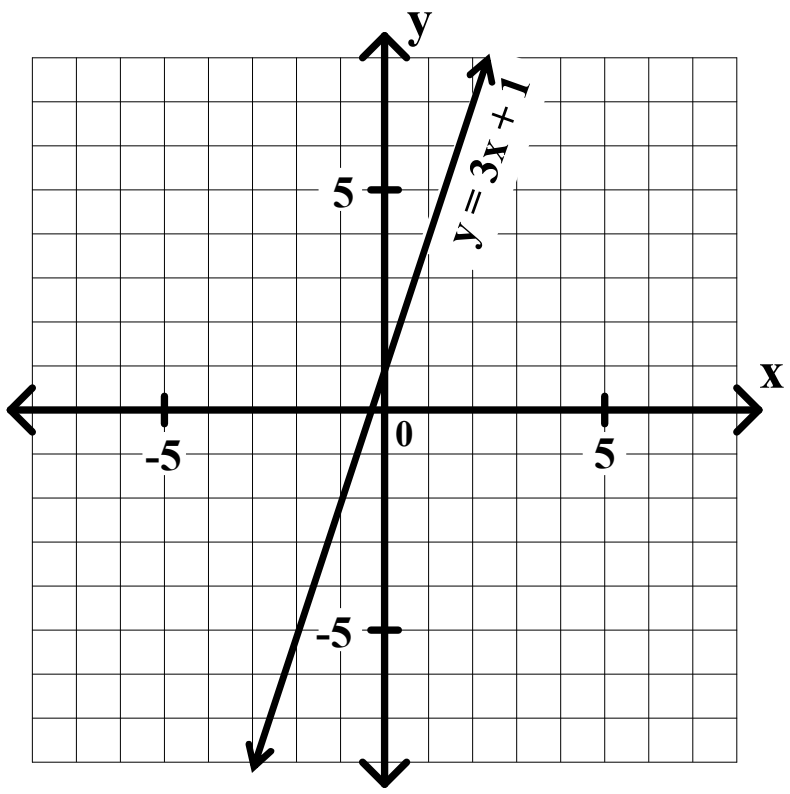

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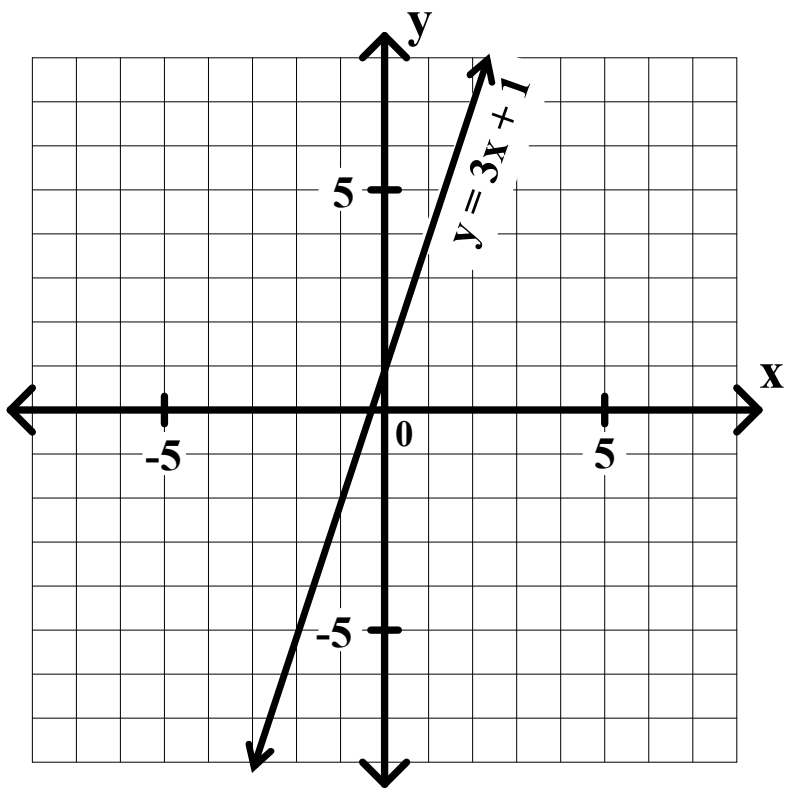

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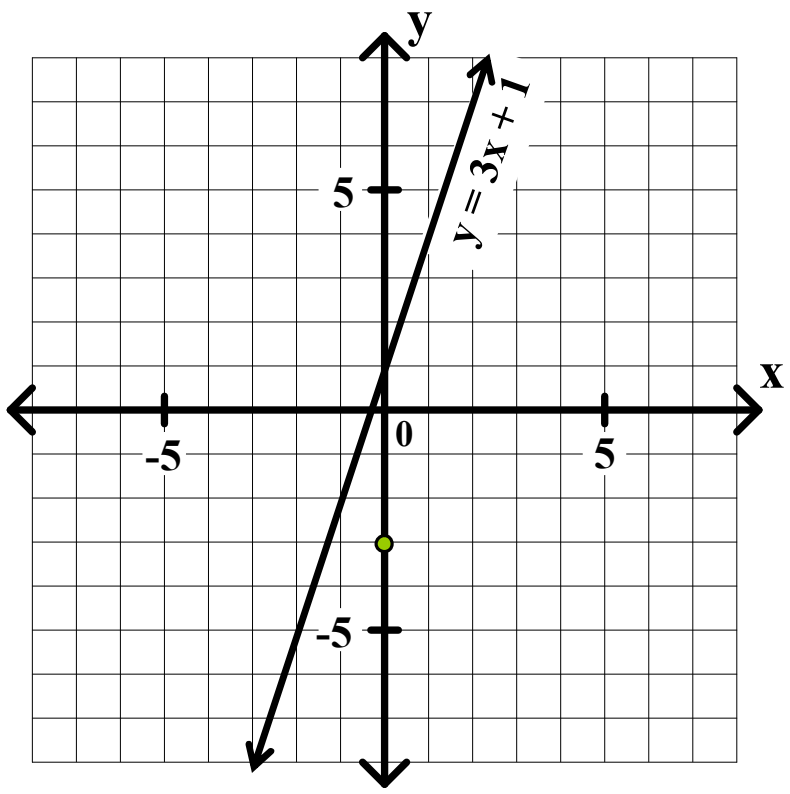

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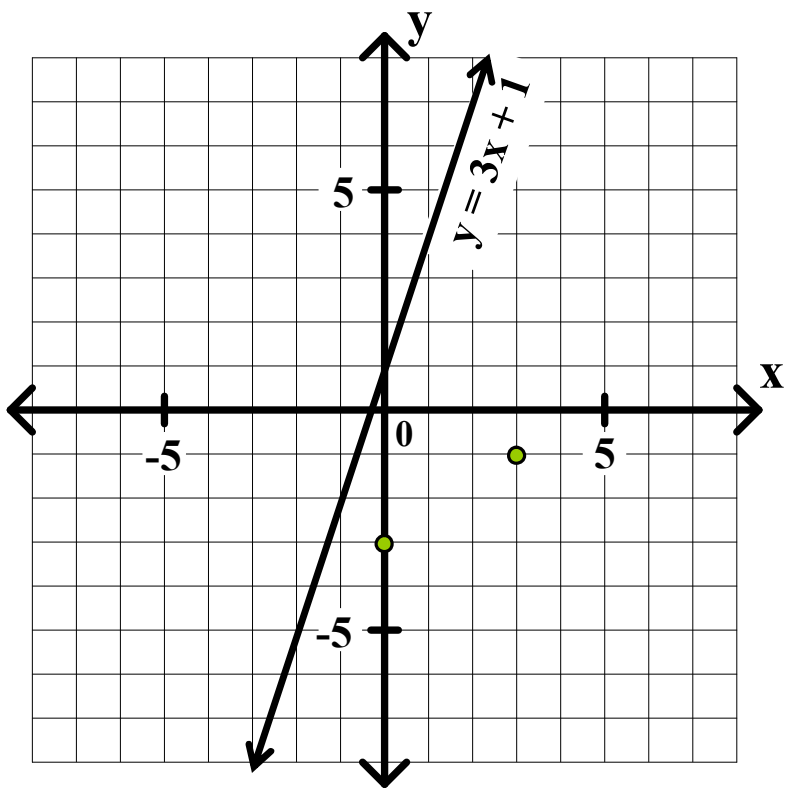

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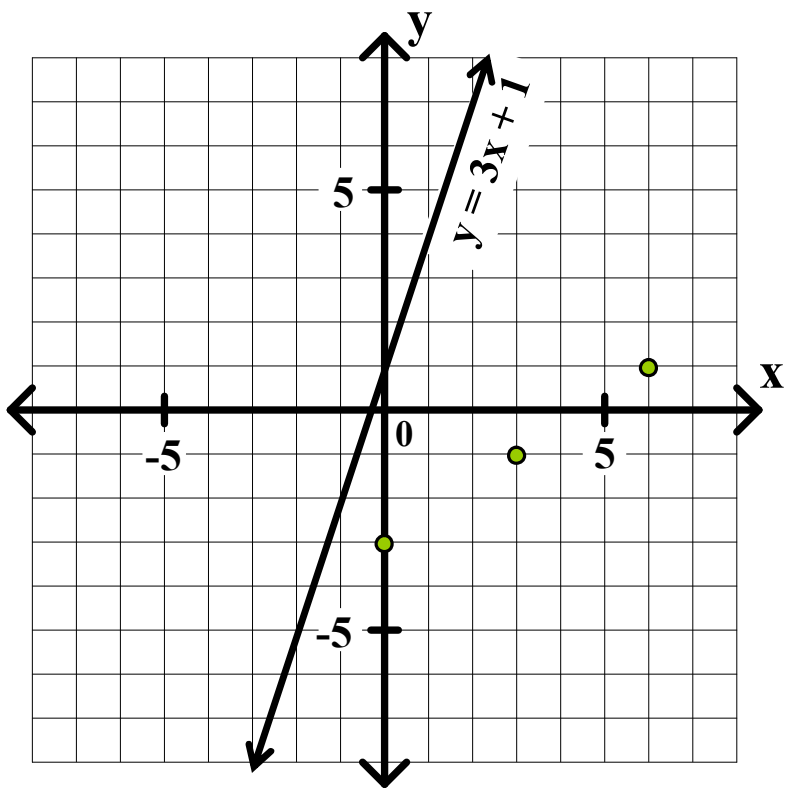

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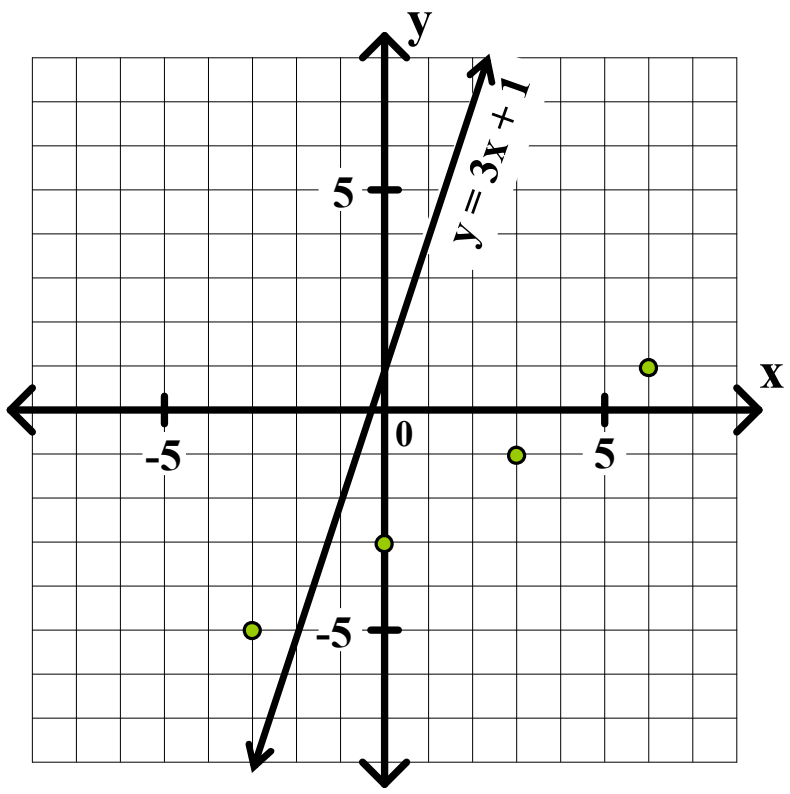

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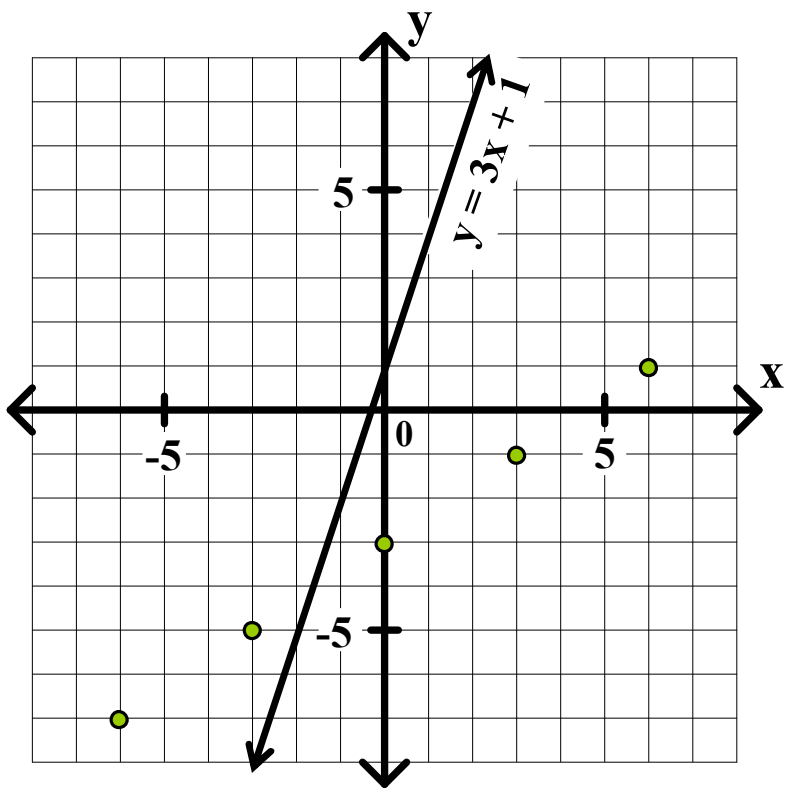

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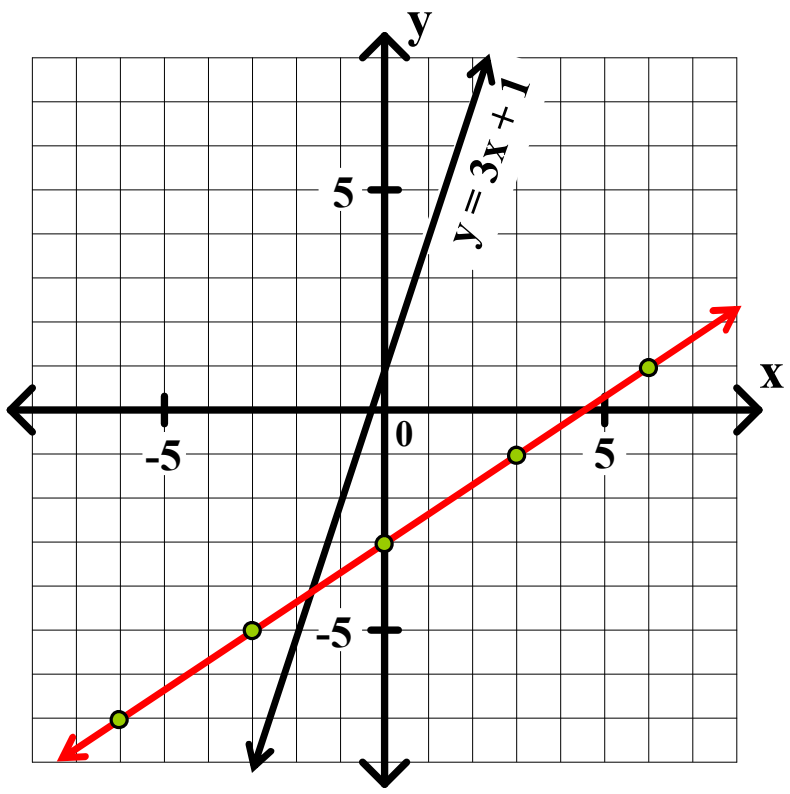

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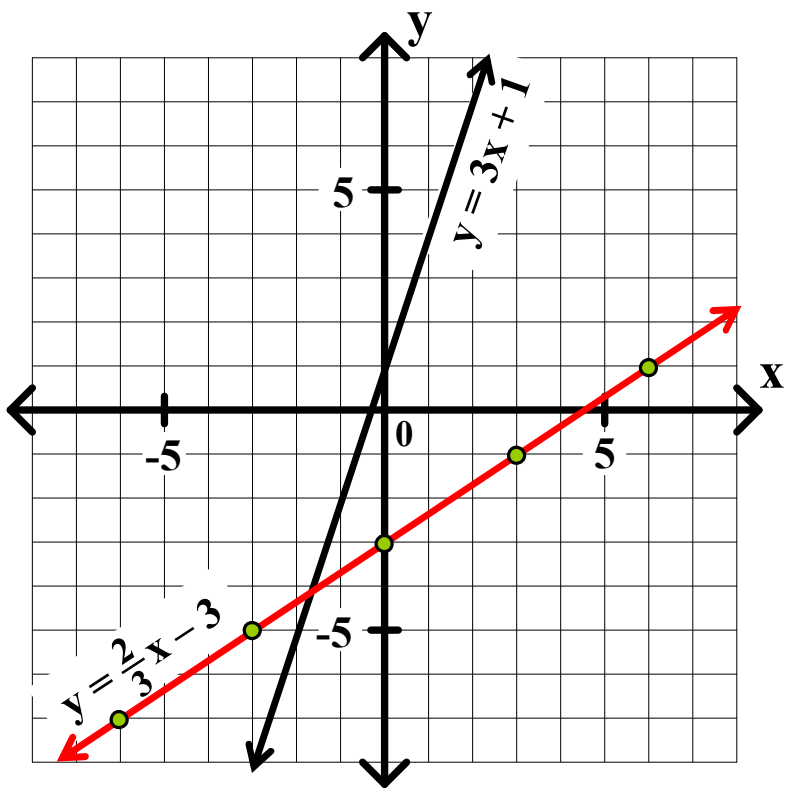

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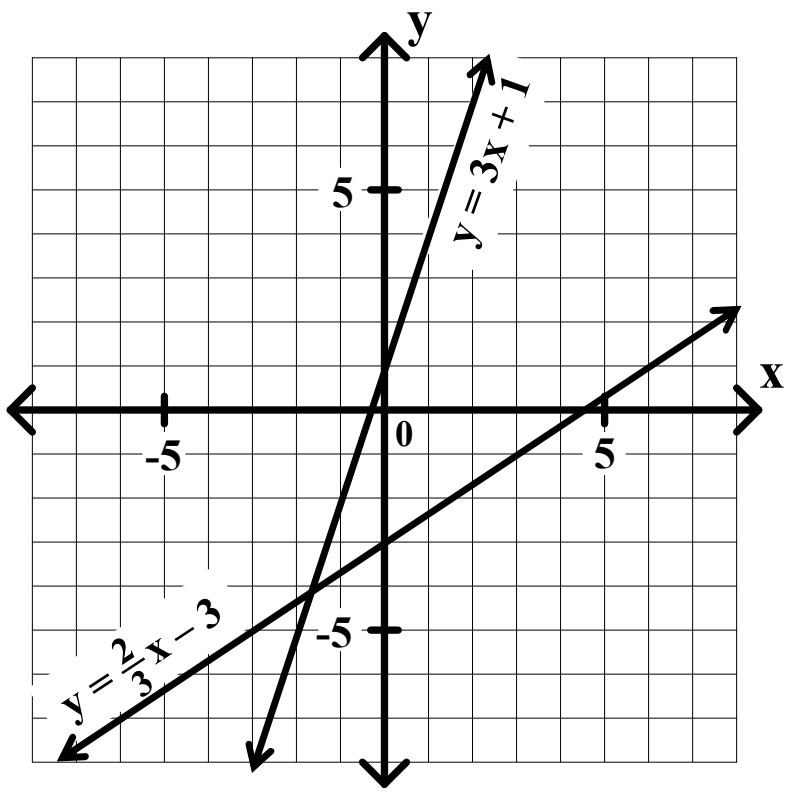

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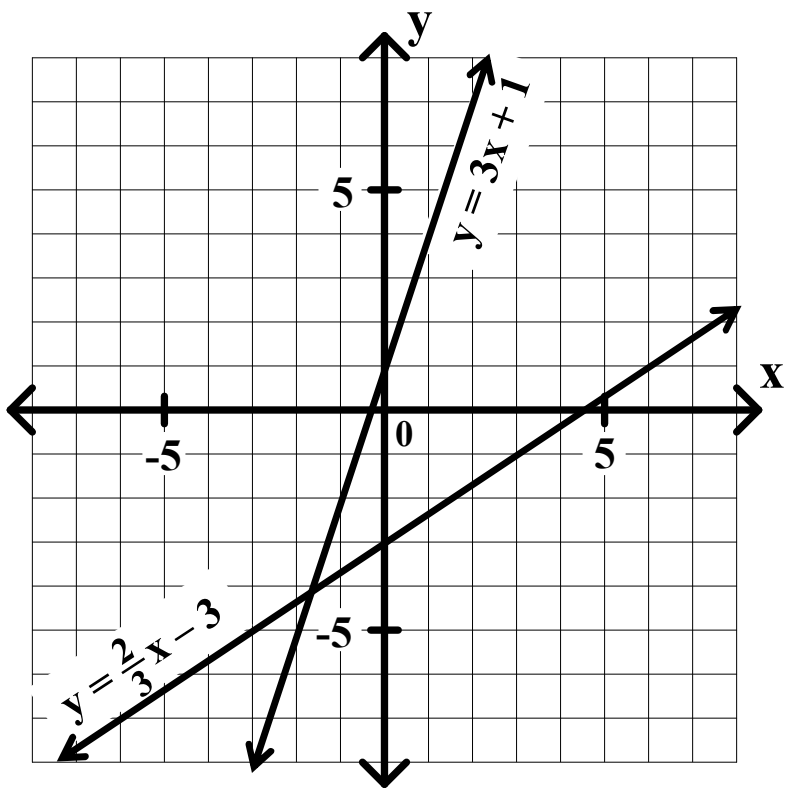

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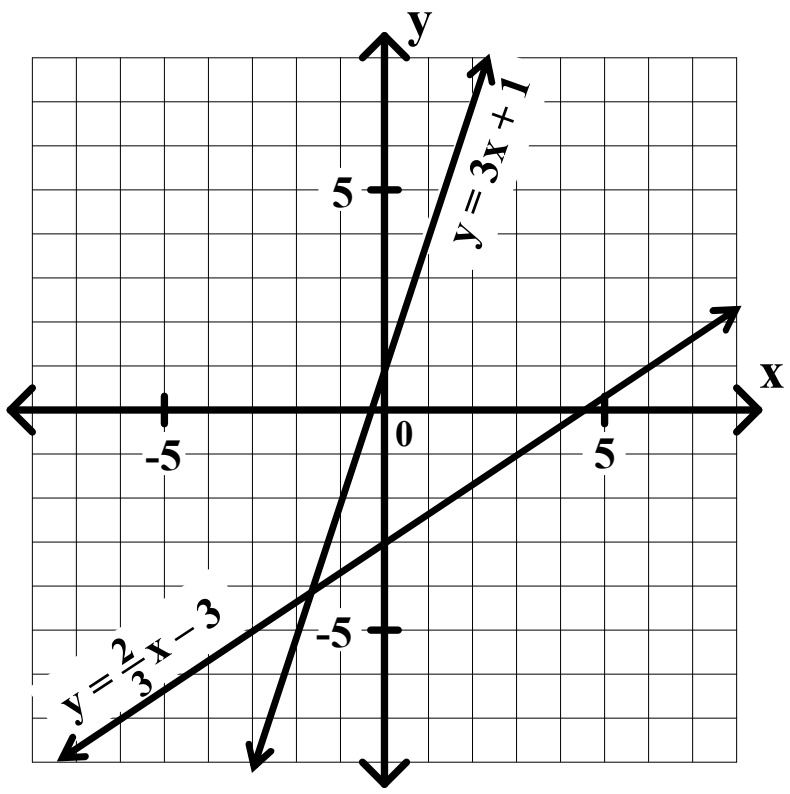

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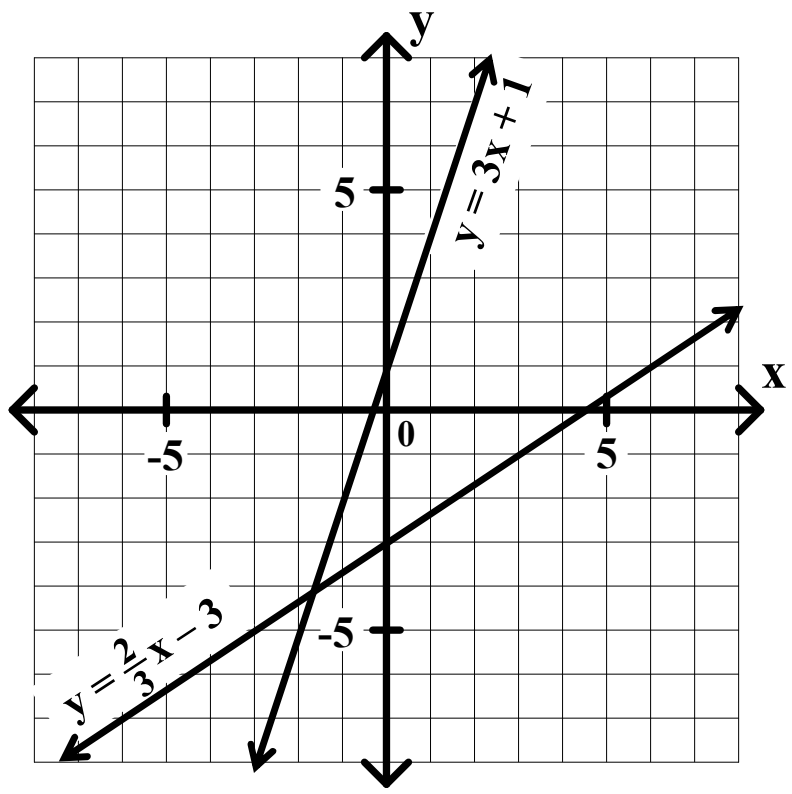

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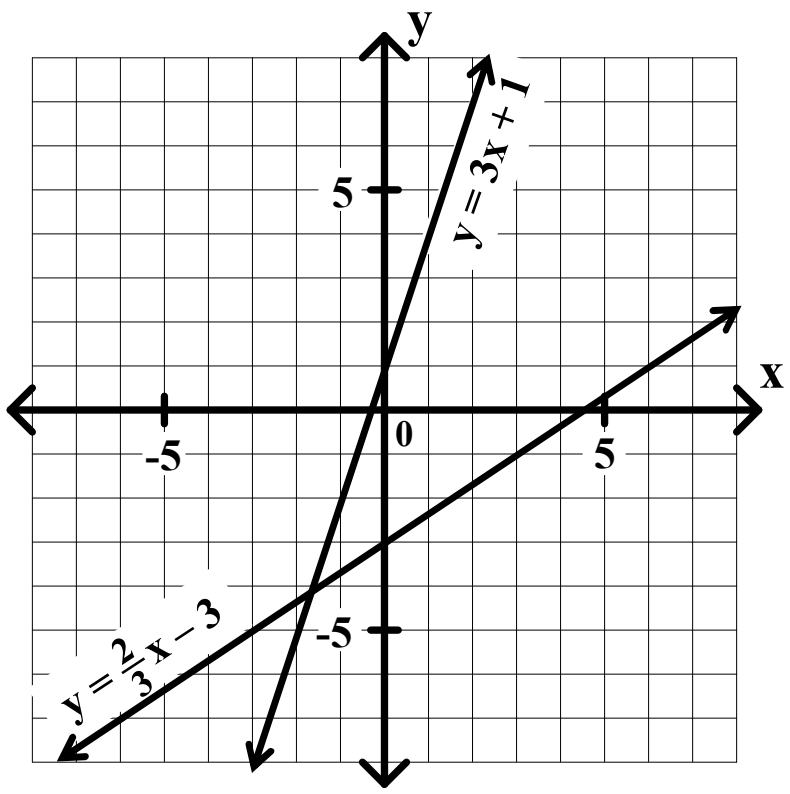

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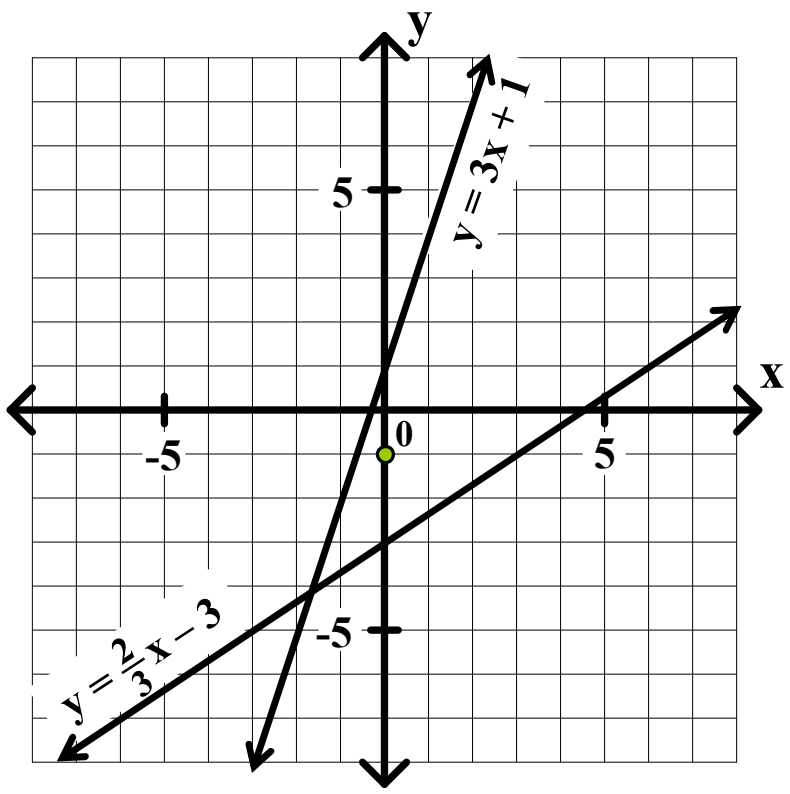

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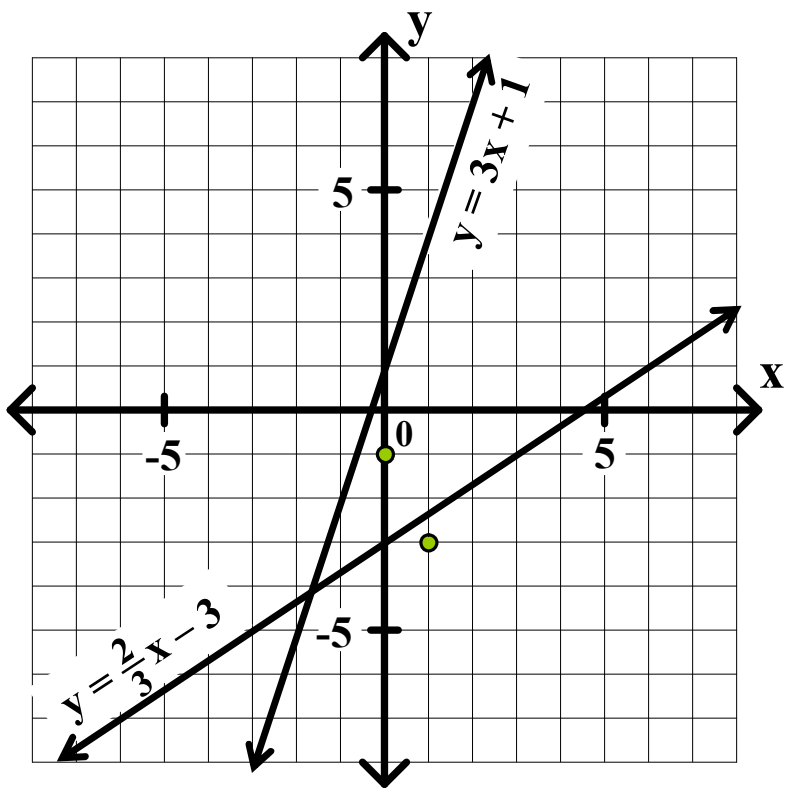

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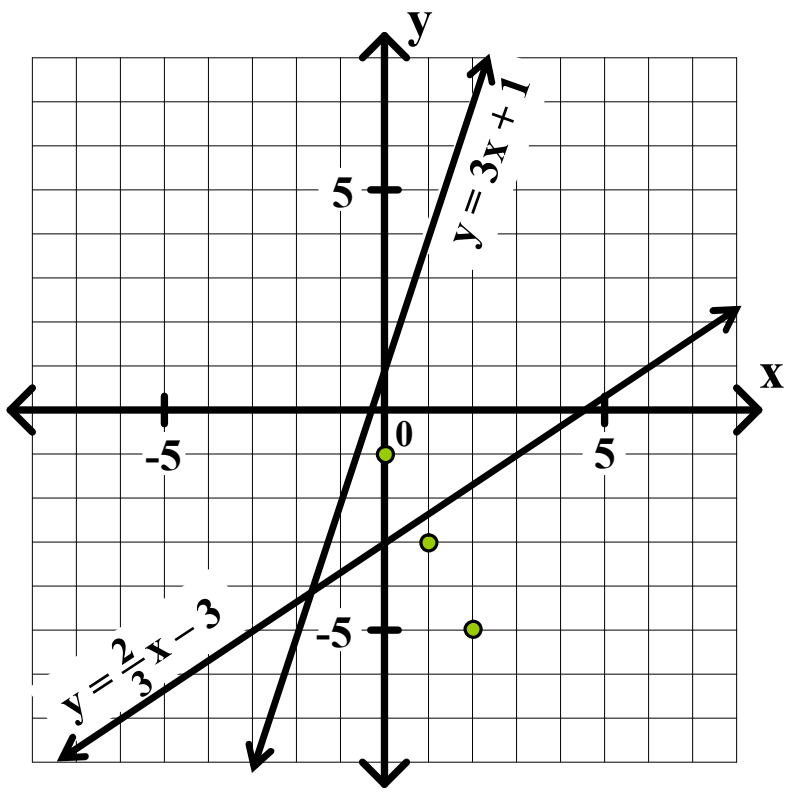

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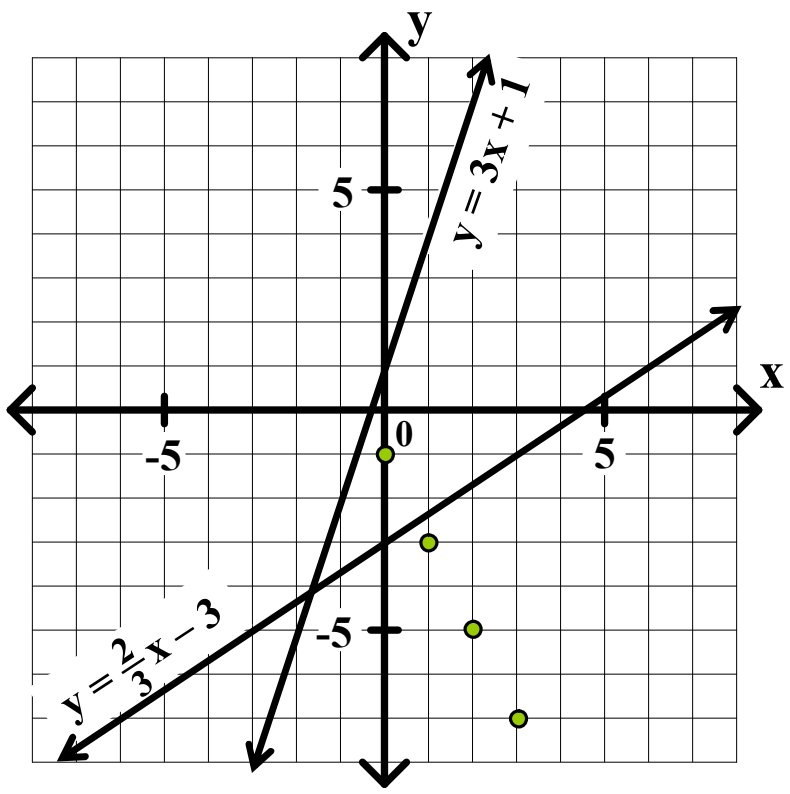

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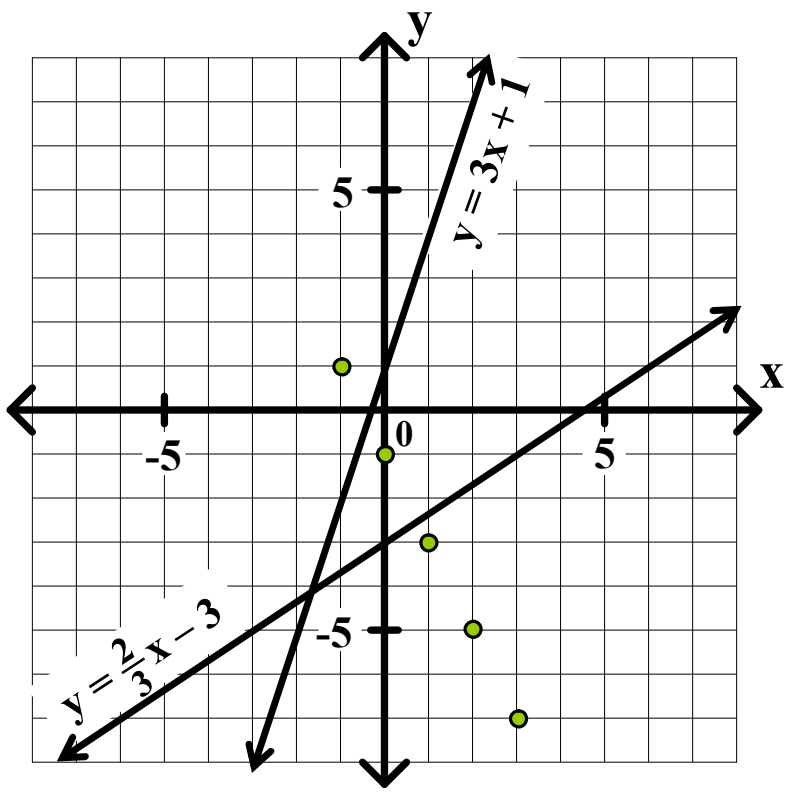

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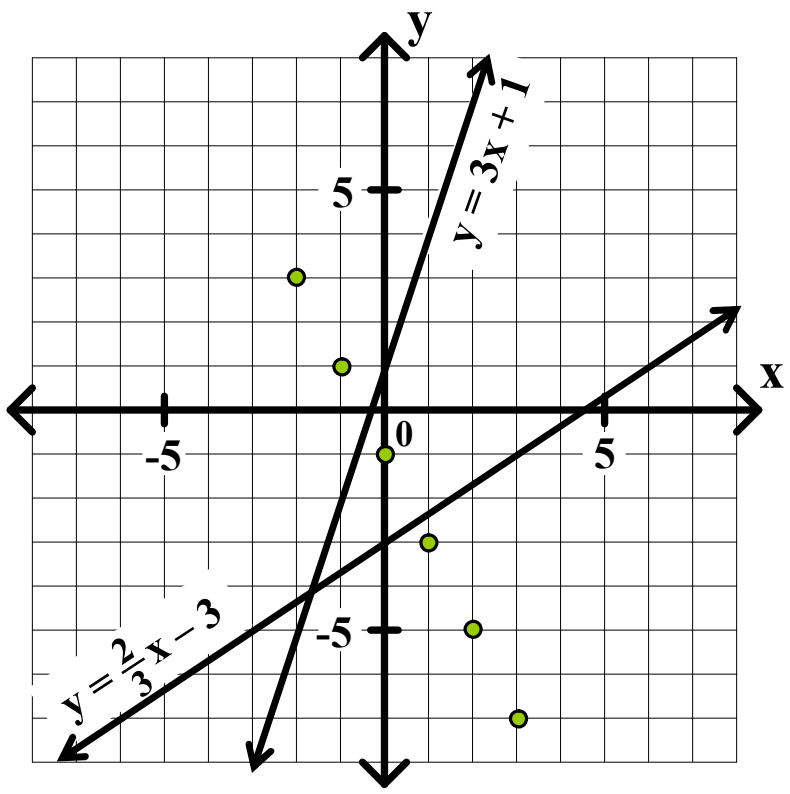

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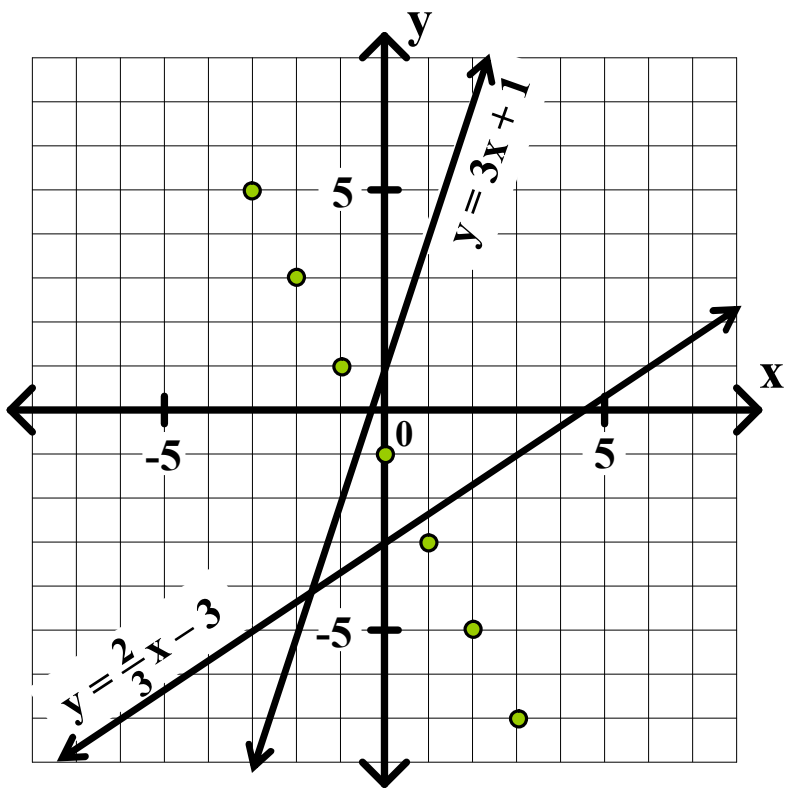

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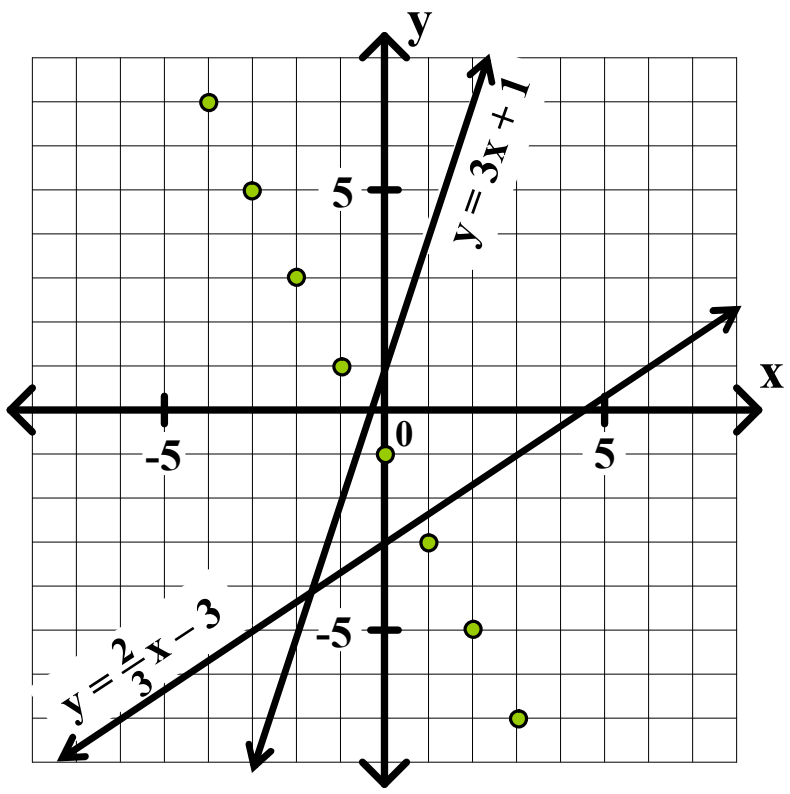

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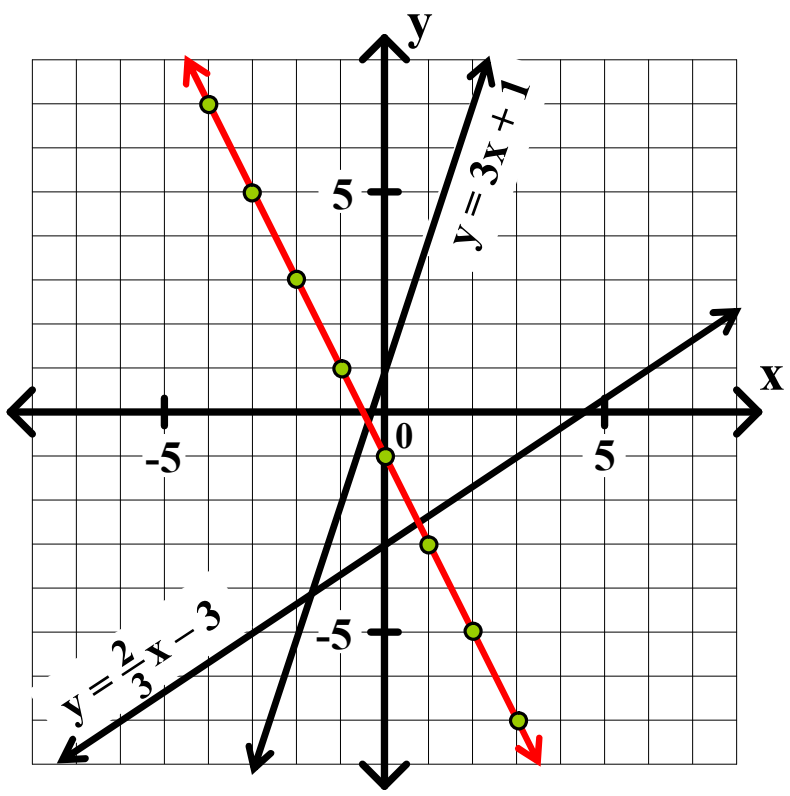

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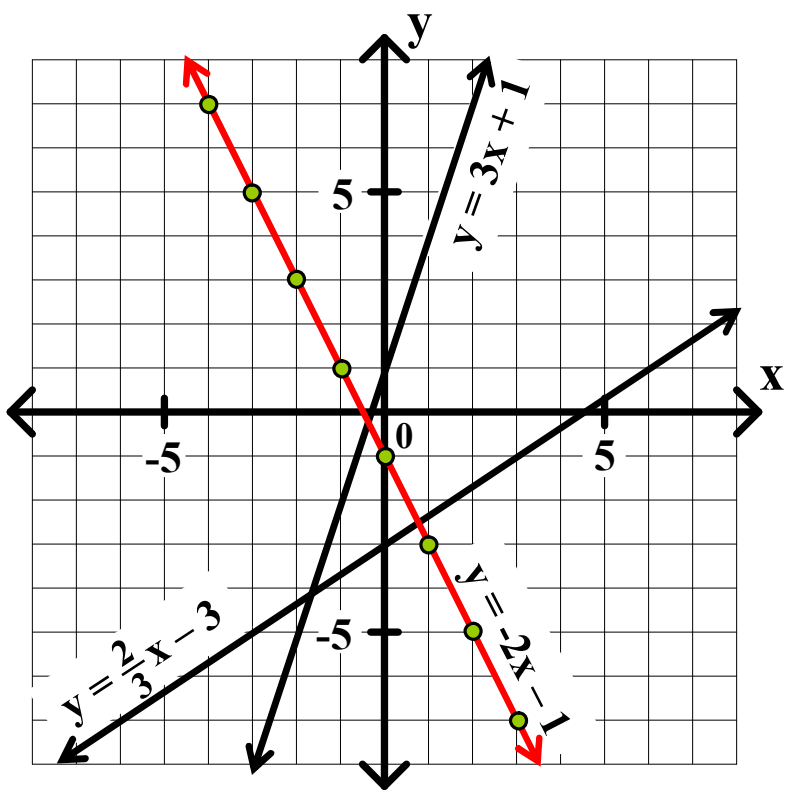

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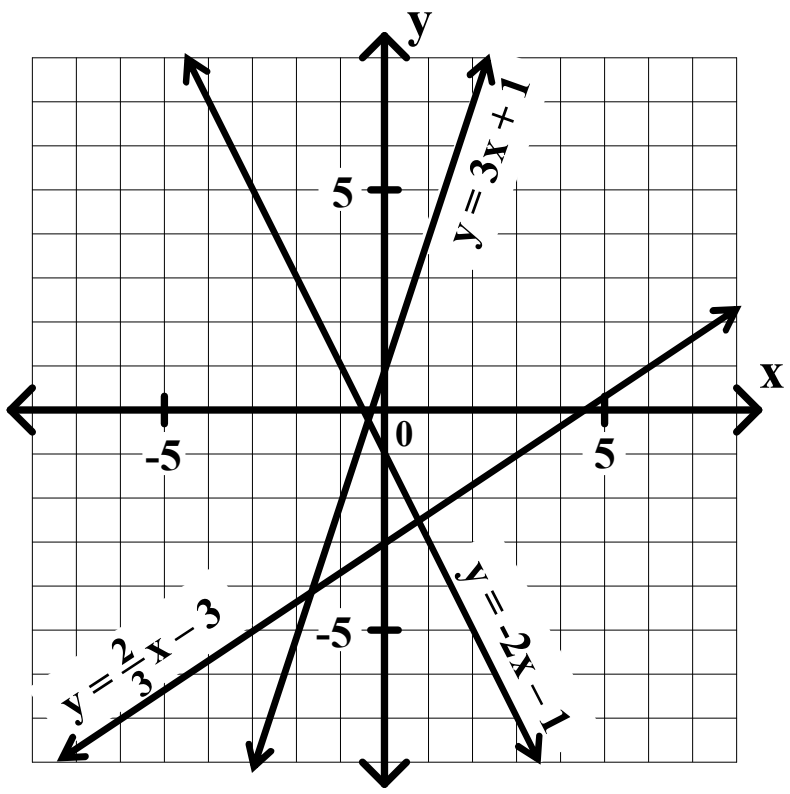

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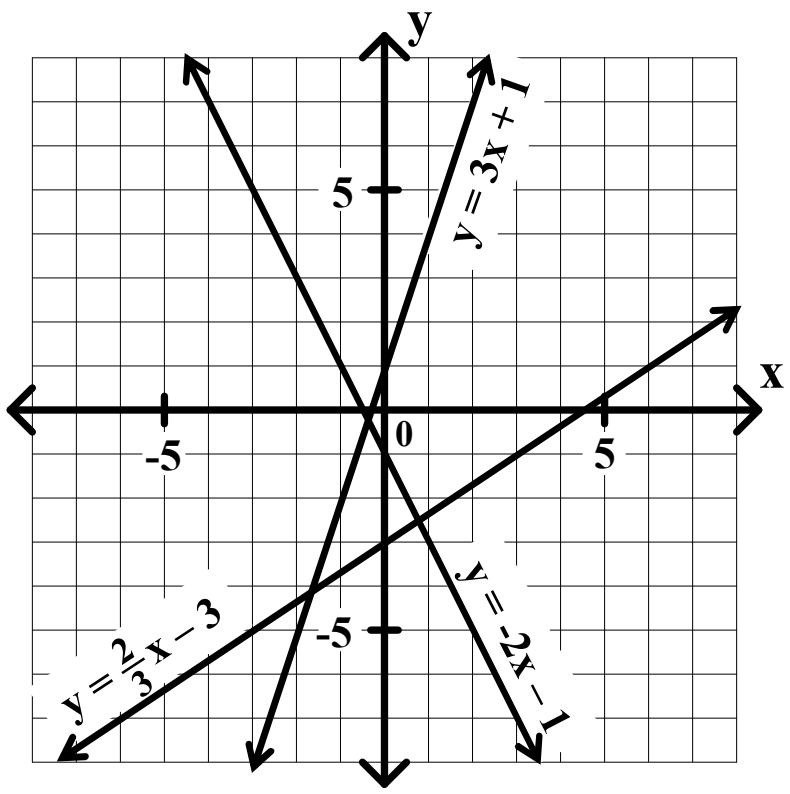

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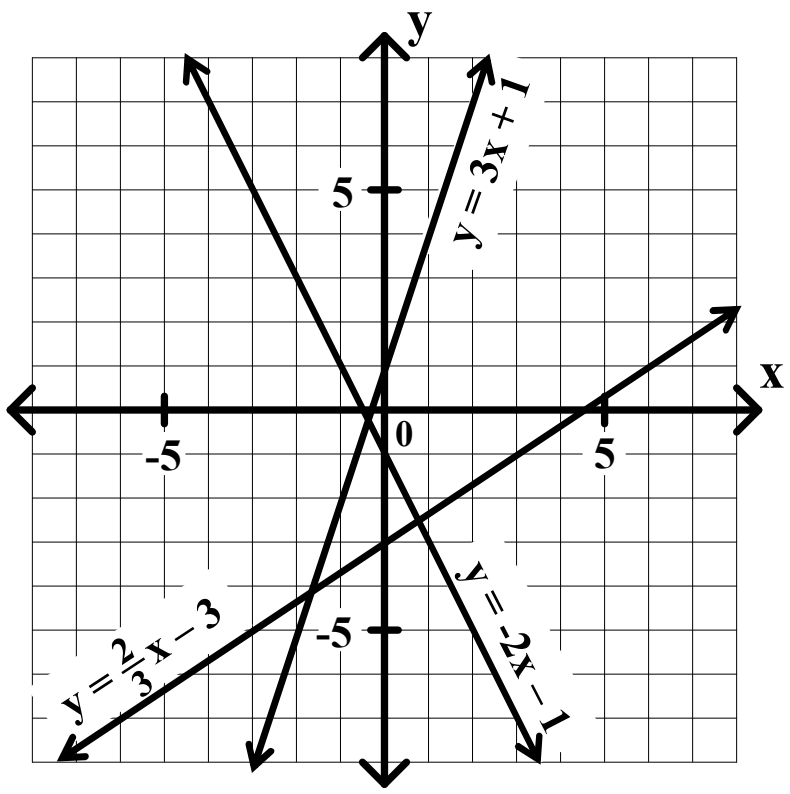

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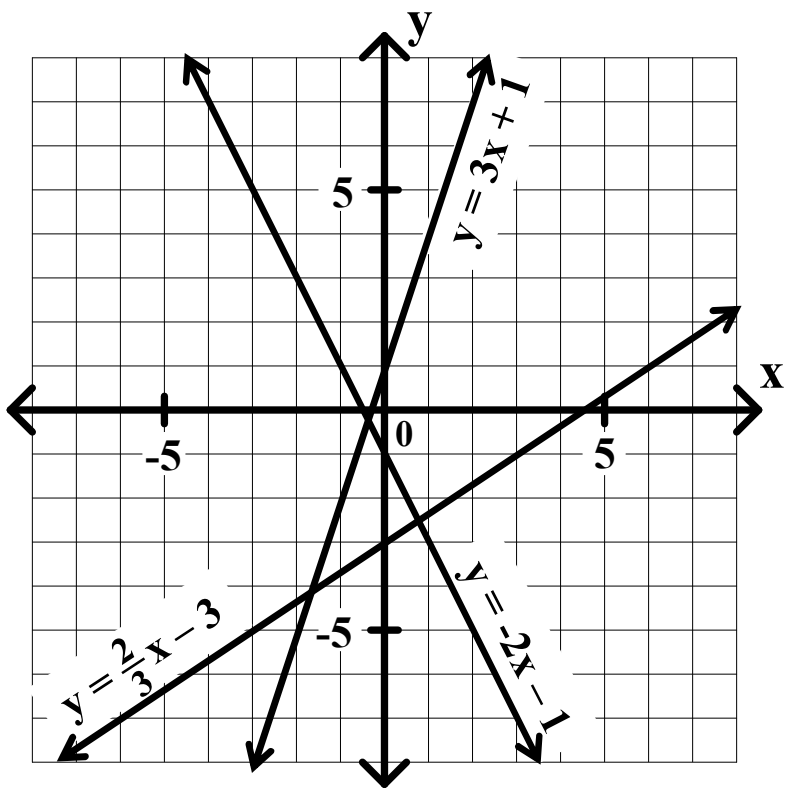

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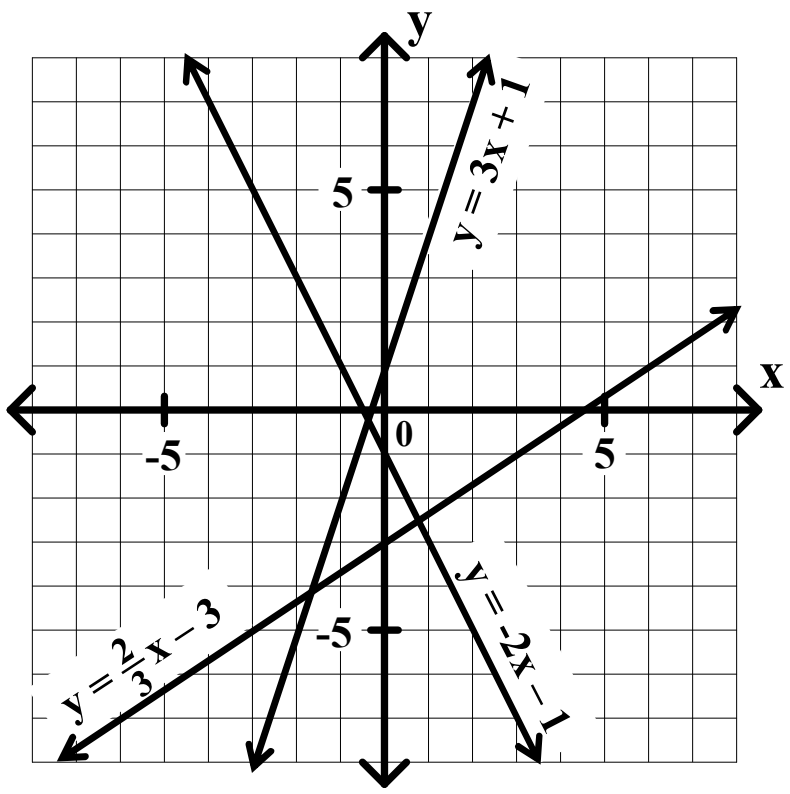

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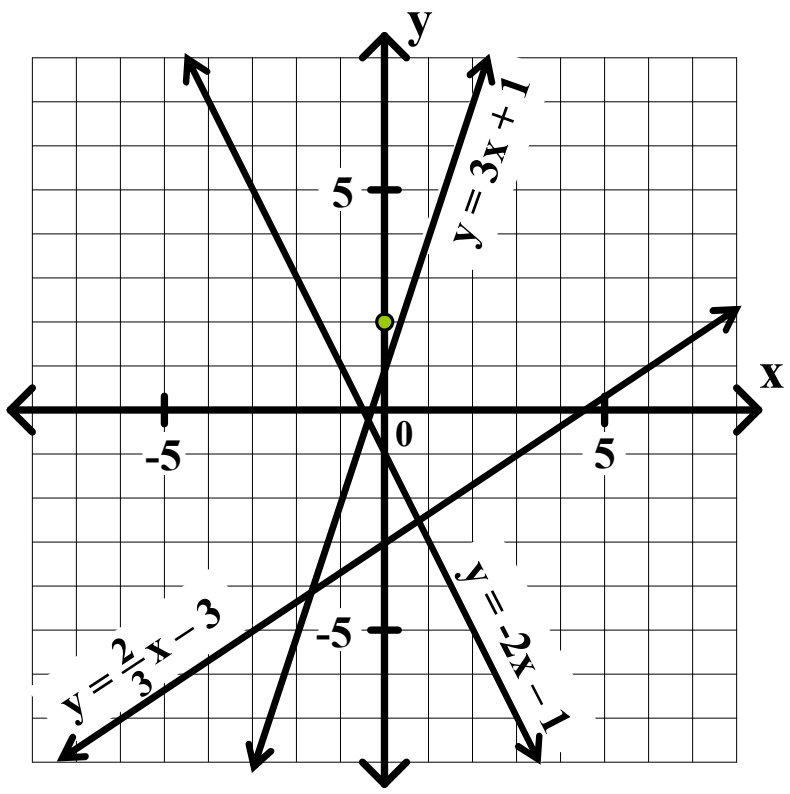

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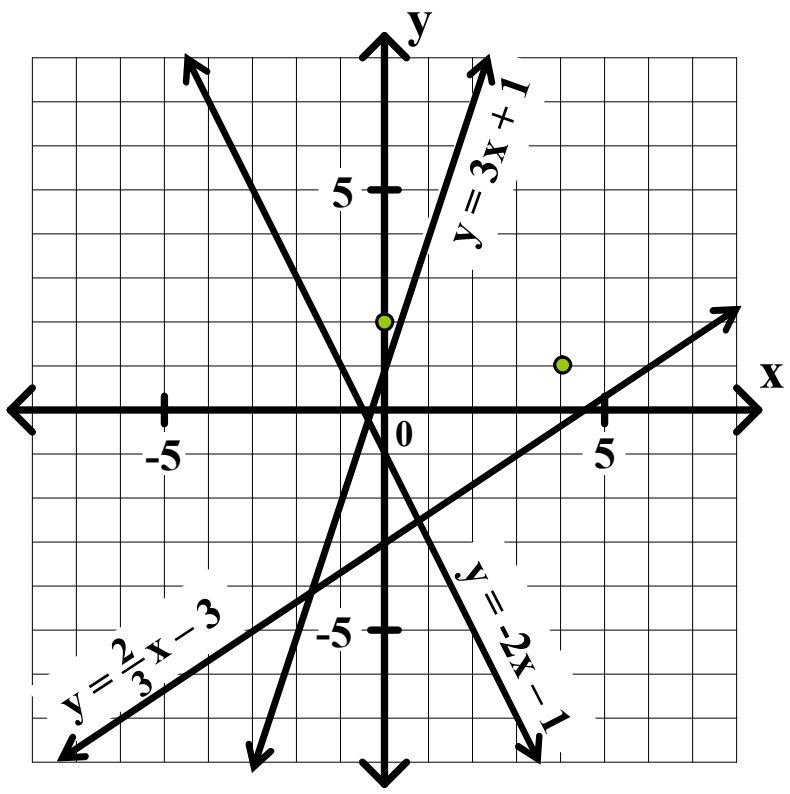

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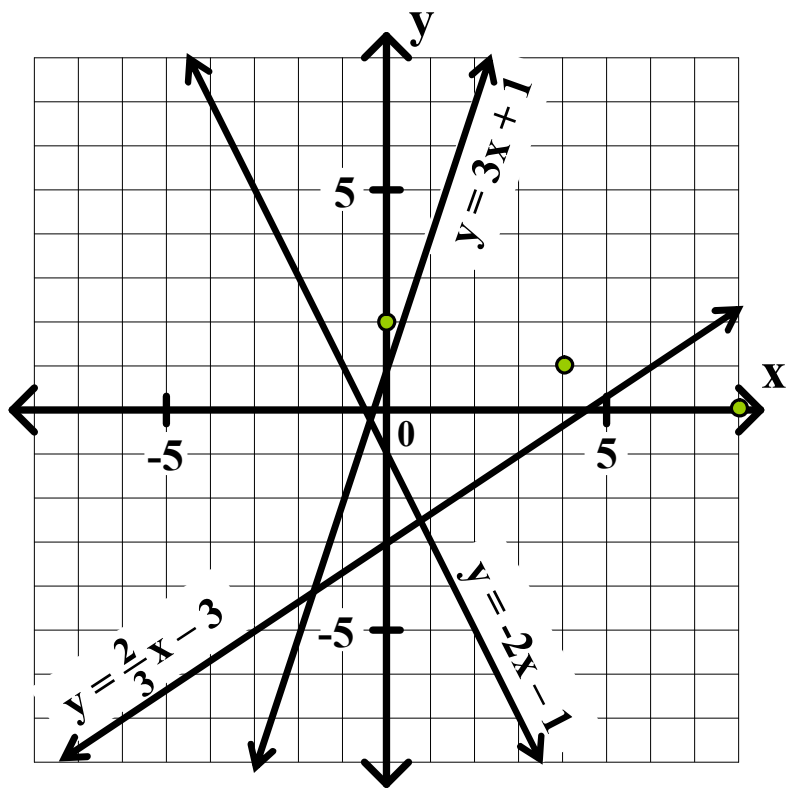

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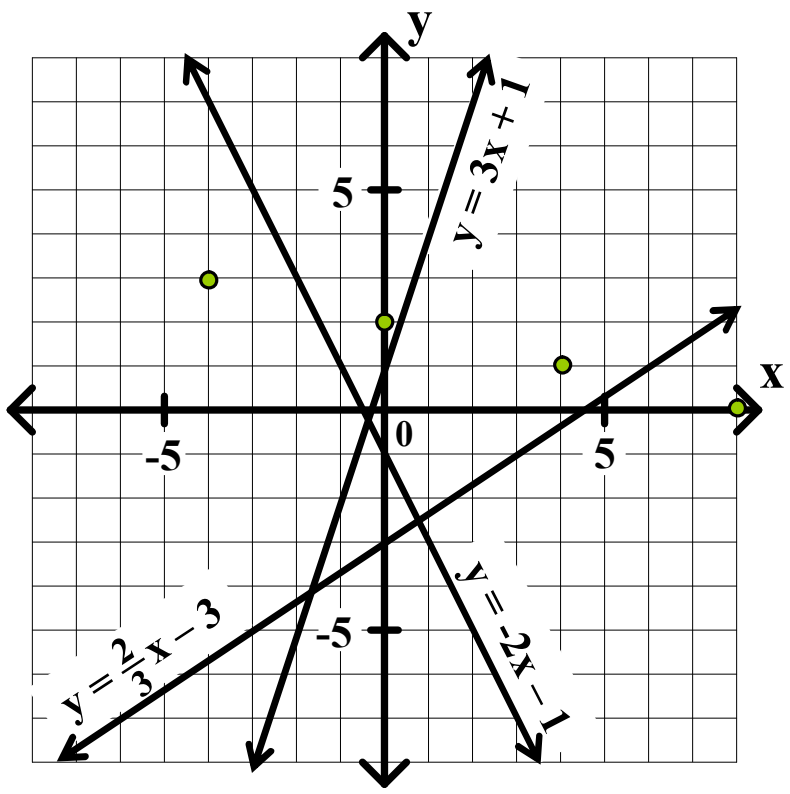

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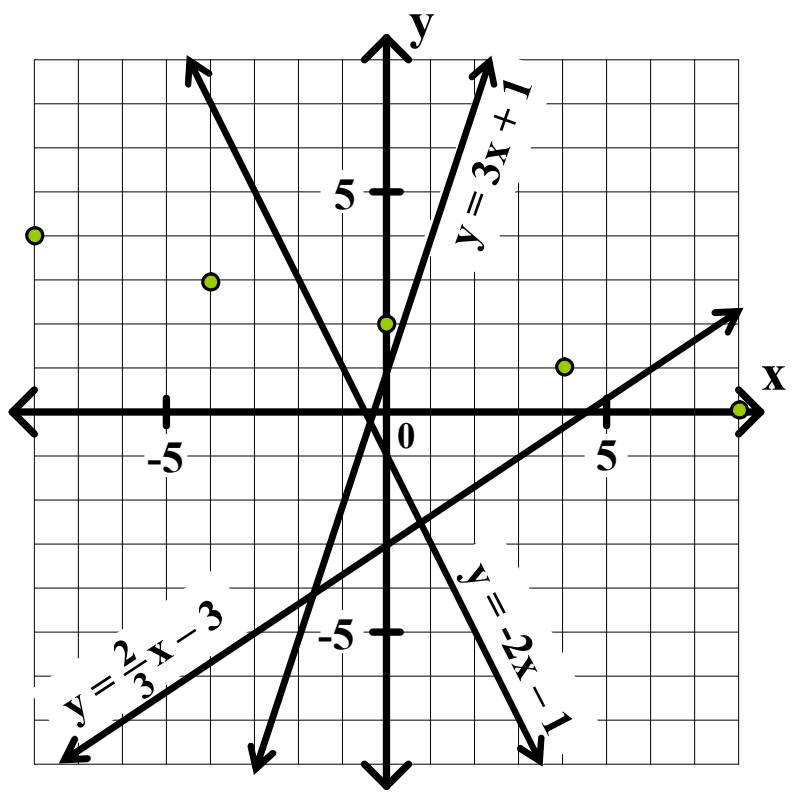

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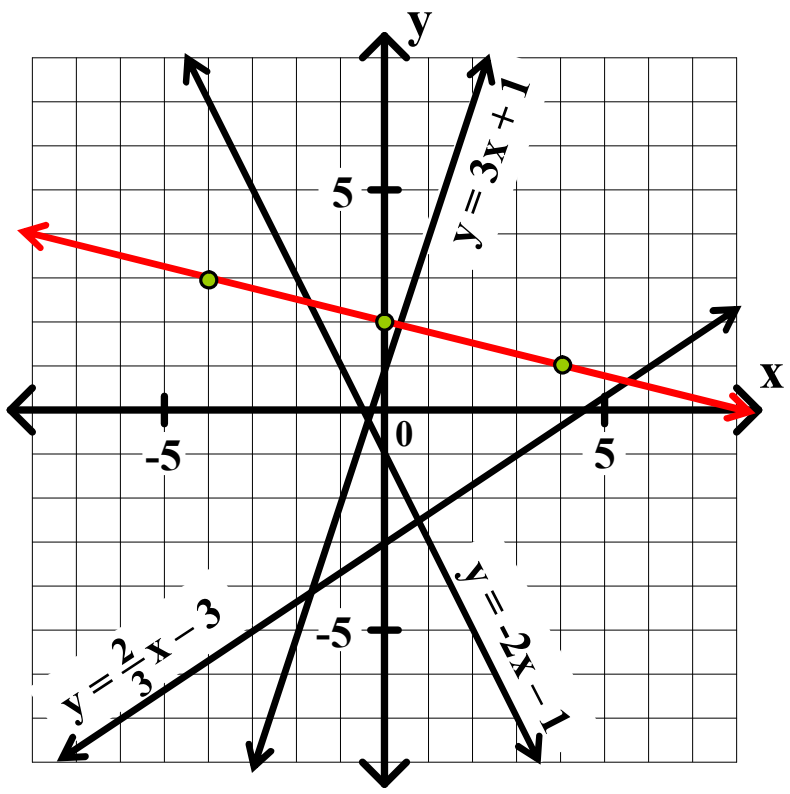

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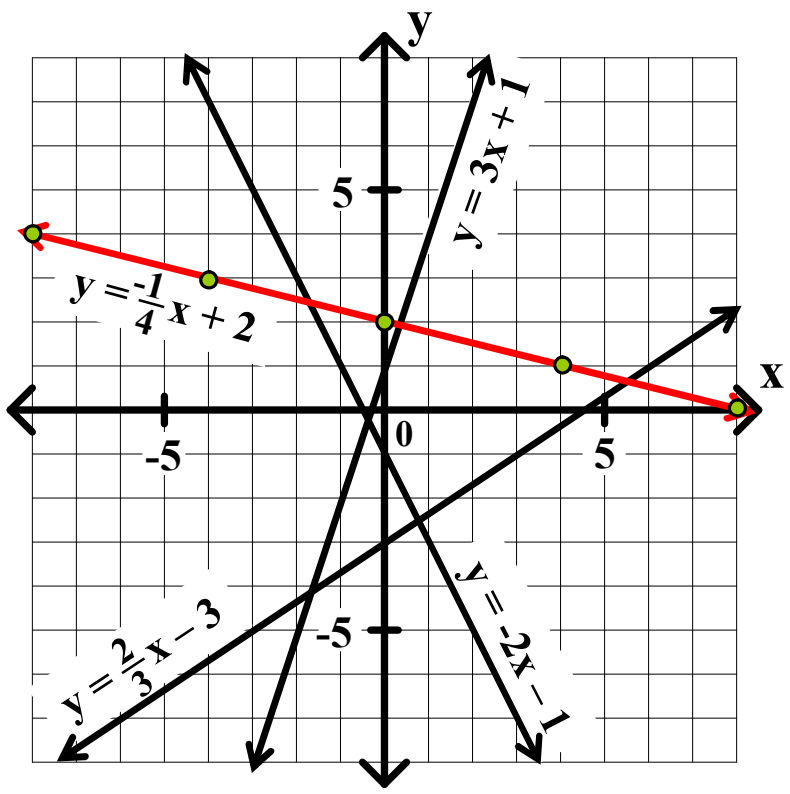

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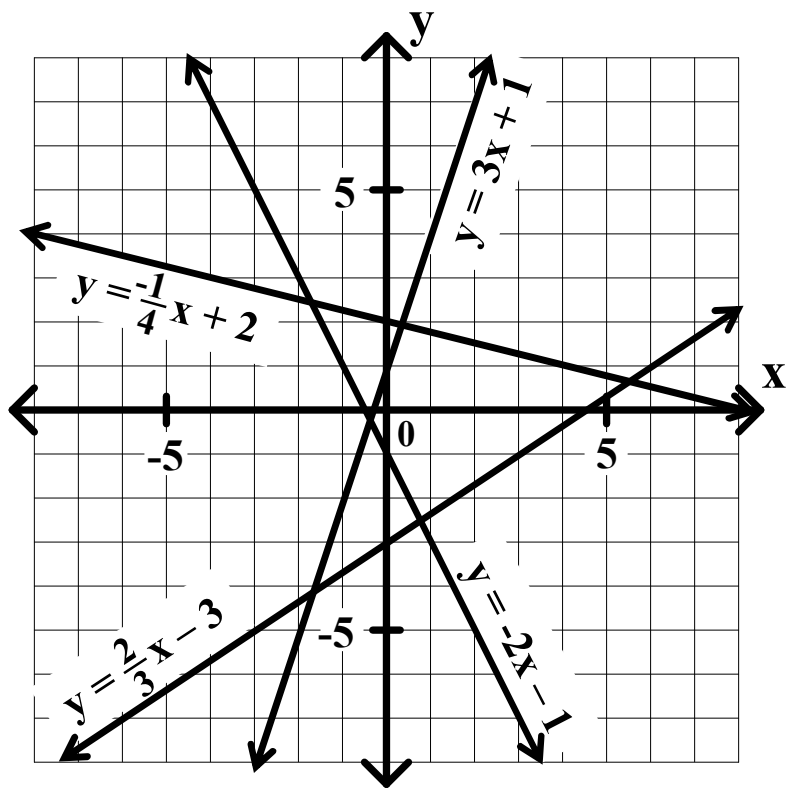

Algebra I Unit 7 The Equation of a Line

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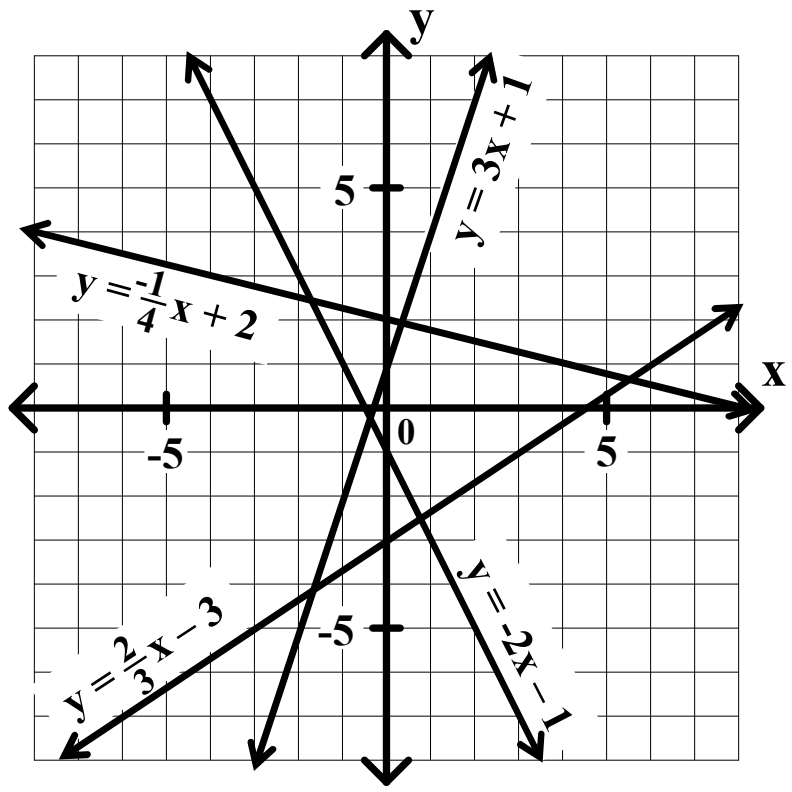

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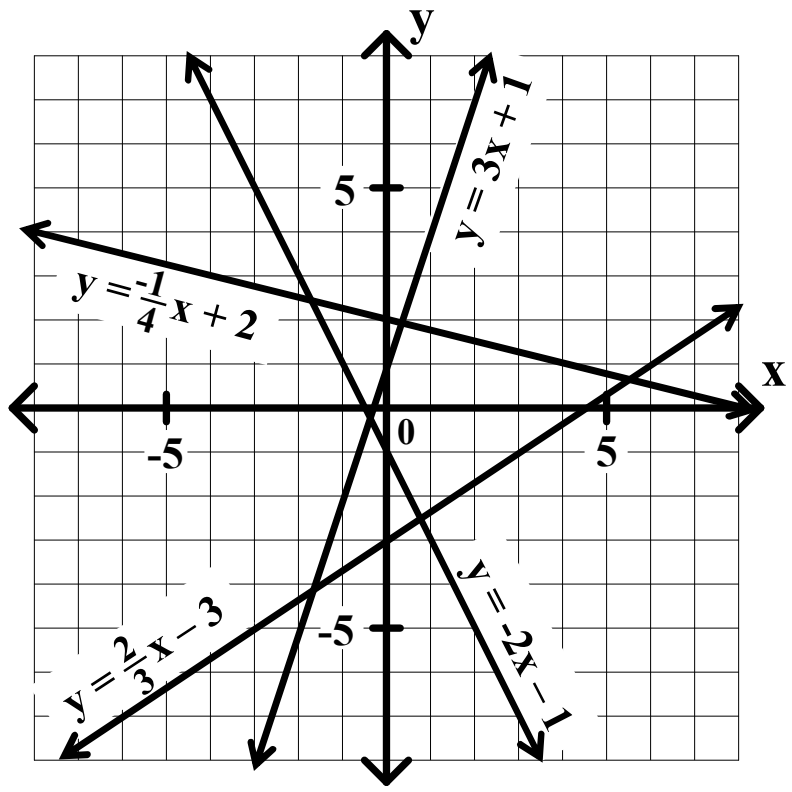
<u>Every</u> oblique line has an equation with the form



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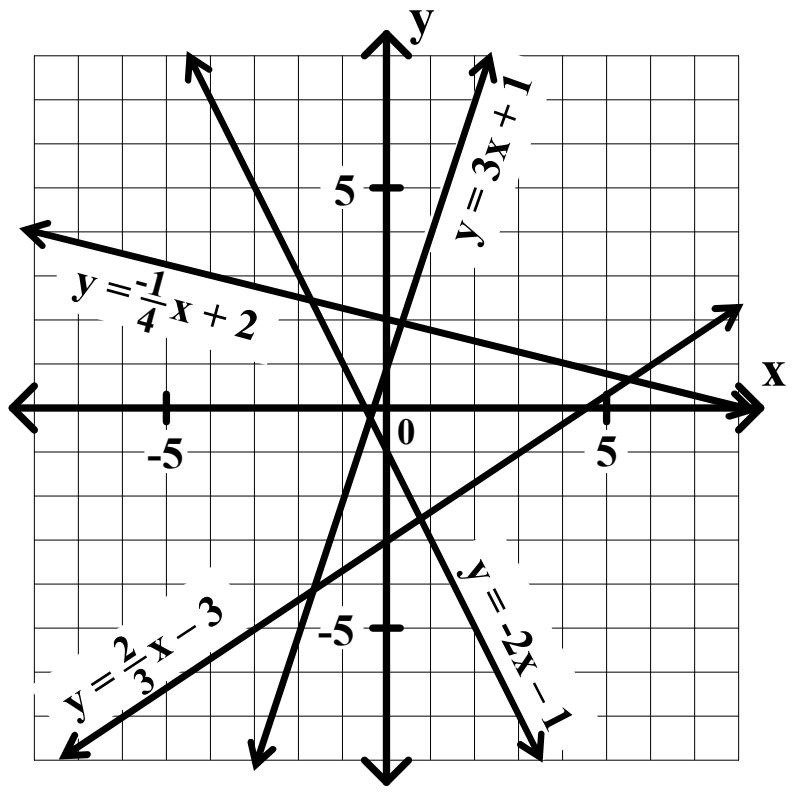

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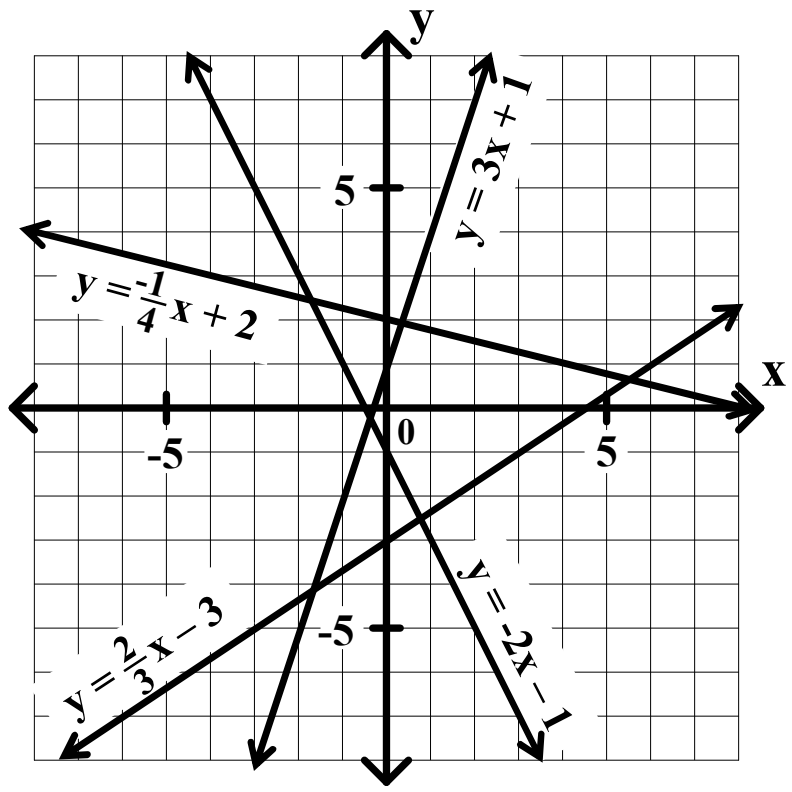

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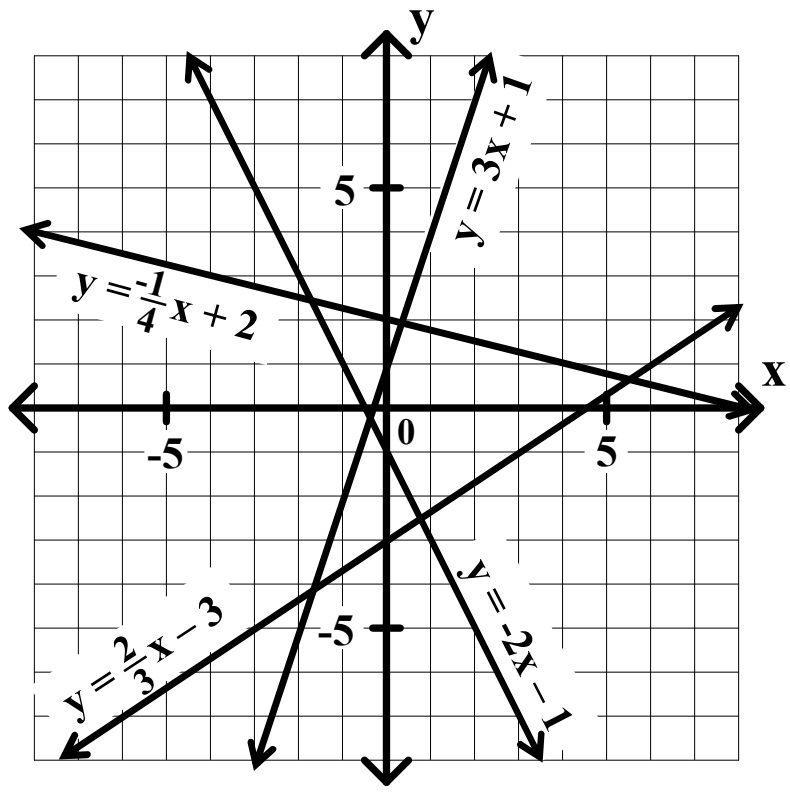

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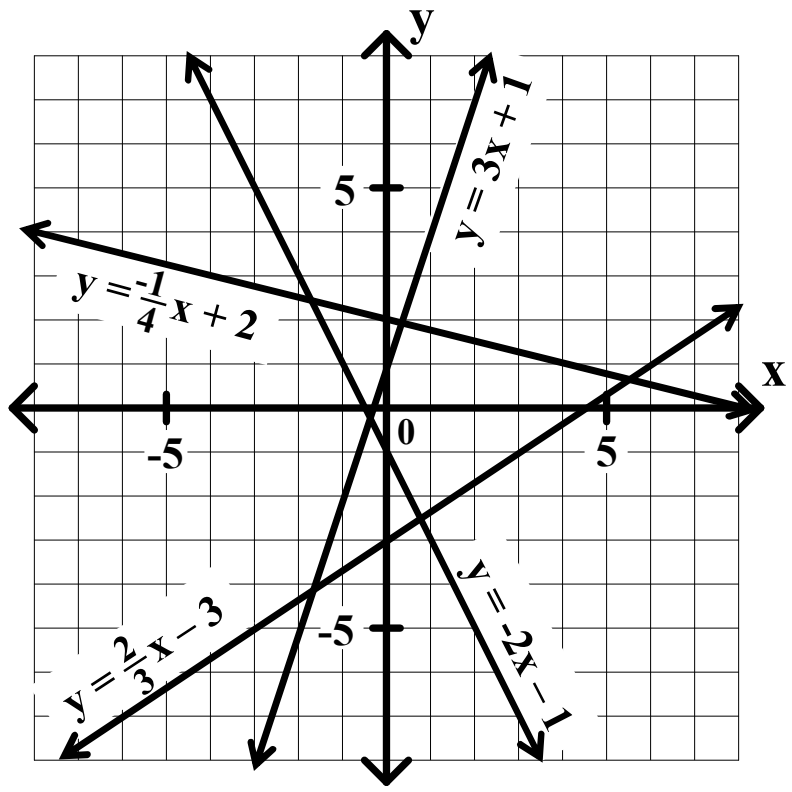

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oblique line ⟹ y = mx + b ⟹ m = -3

The point (0, 2) is on the y-axis !!

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Algebra I Class Worksheet #1 Unit 7

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oblique line → $y = mx + b$ → $m = -3$

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10. The line through (0, -3) with slope $\frac{-1}{3}$ **.** _____

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Algebra I Class Worksheet #1 Unit 7

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The line is not vertical !!

Algebra I Class Worksheet #1 Unit 7

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The line is not horizontal !!

Algebra I Class Worksheet #1 Unit 7

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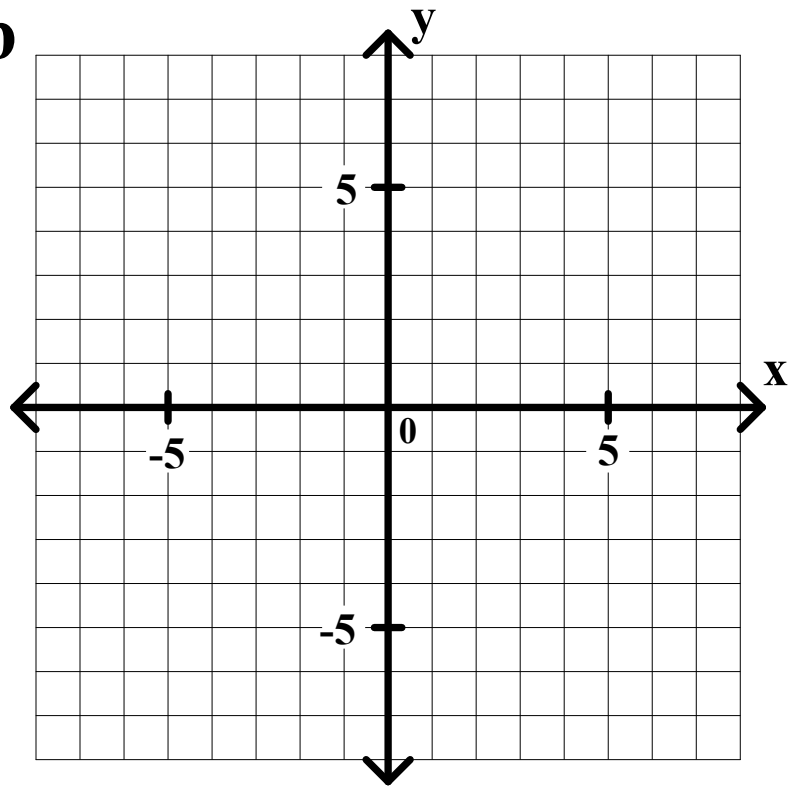

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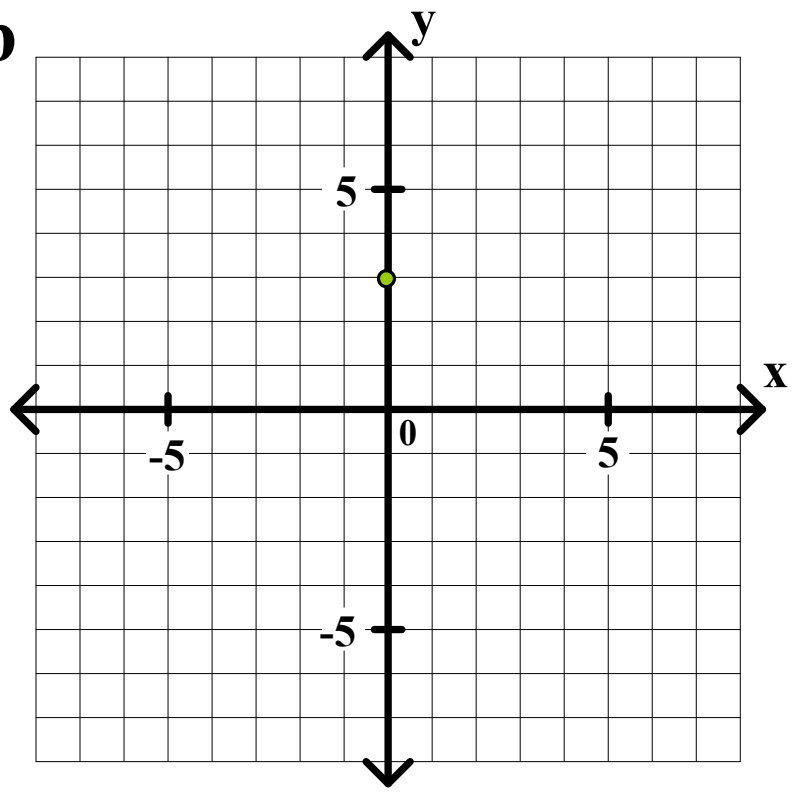

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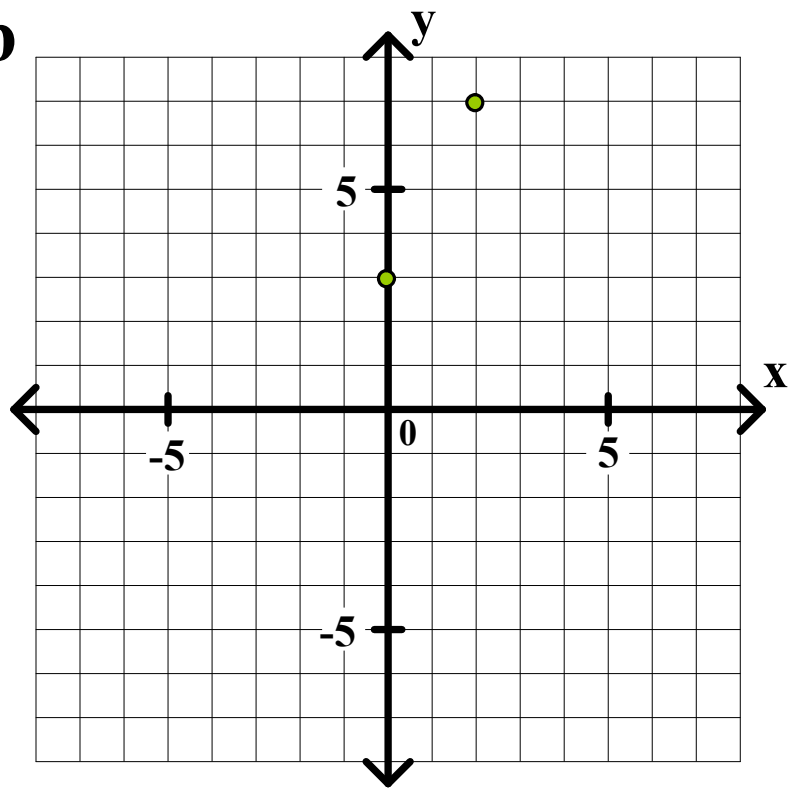

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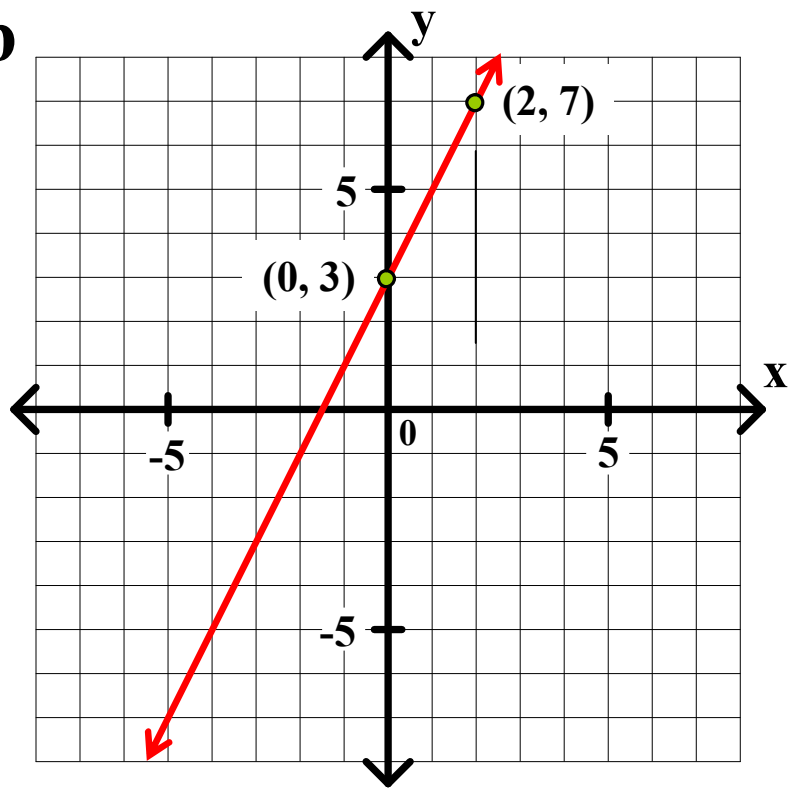

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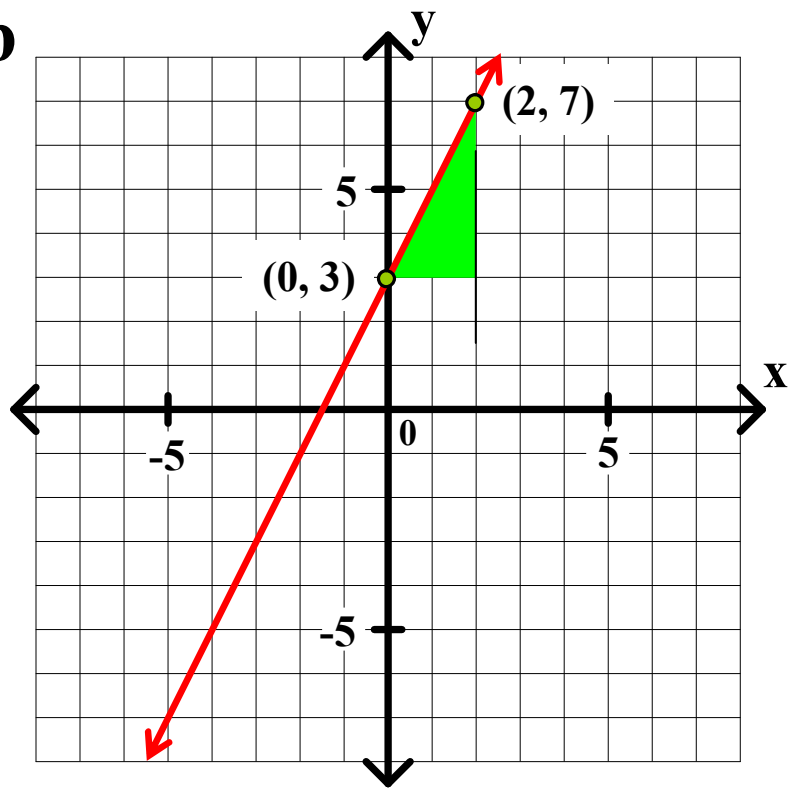

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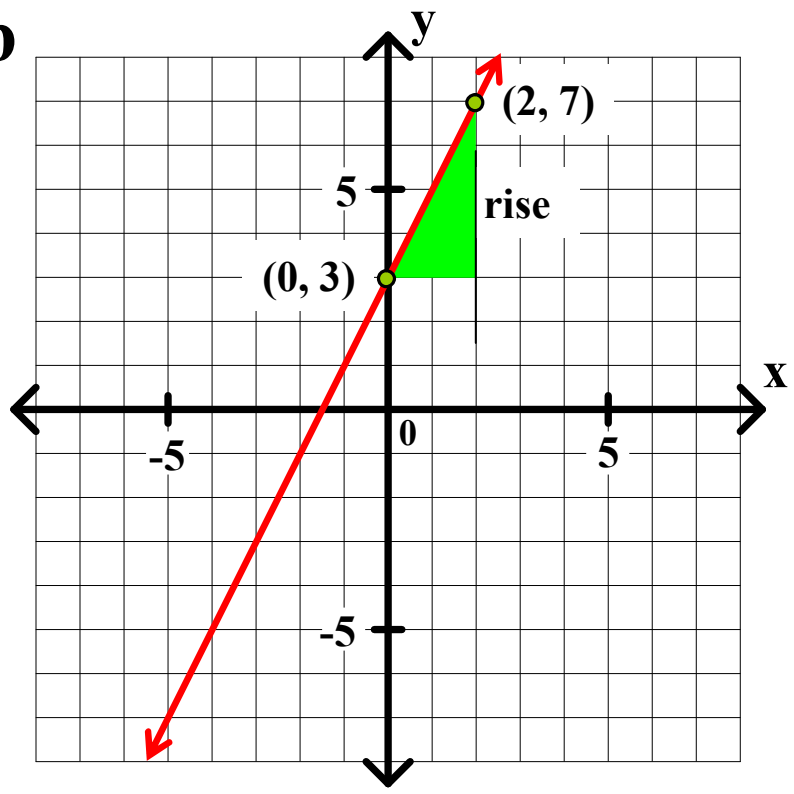

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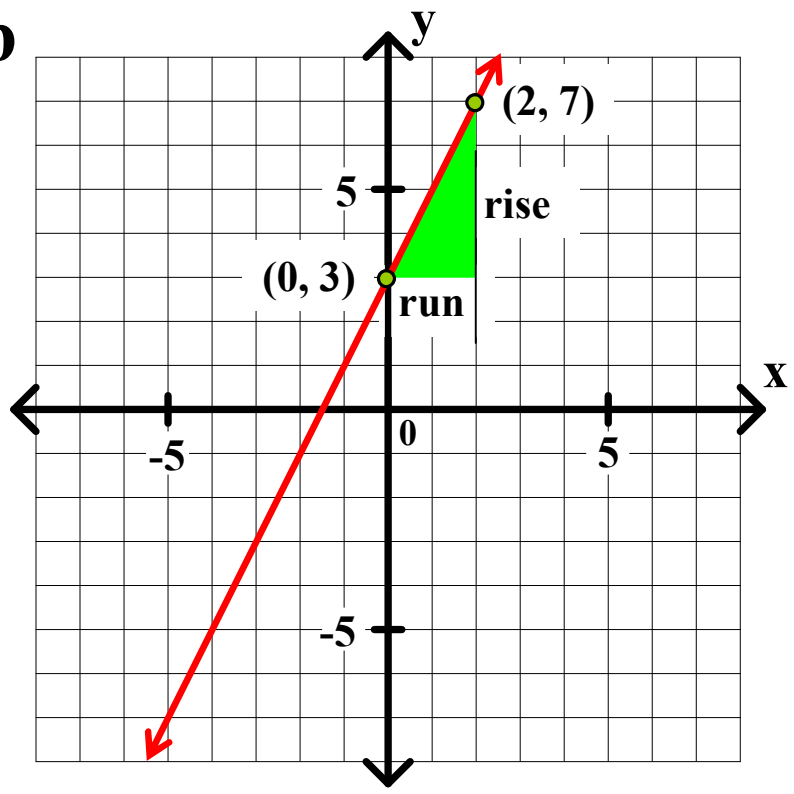

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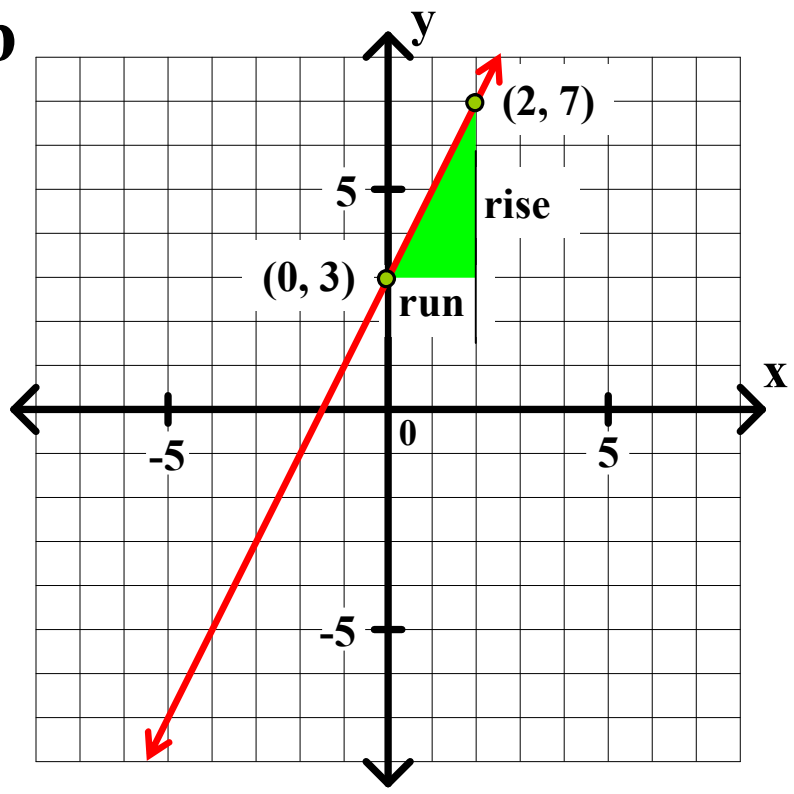

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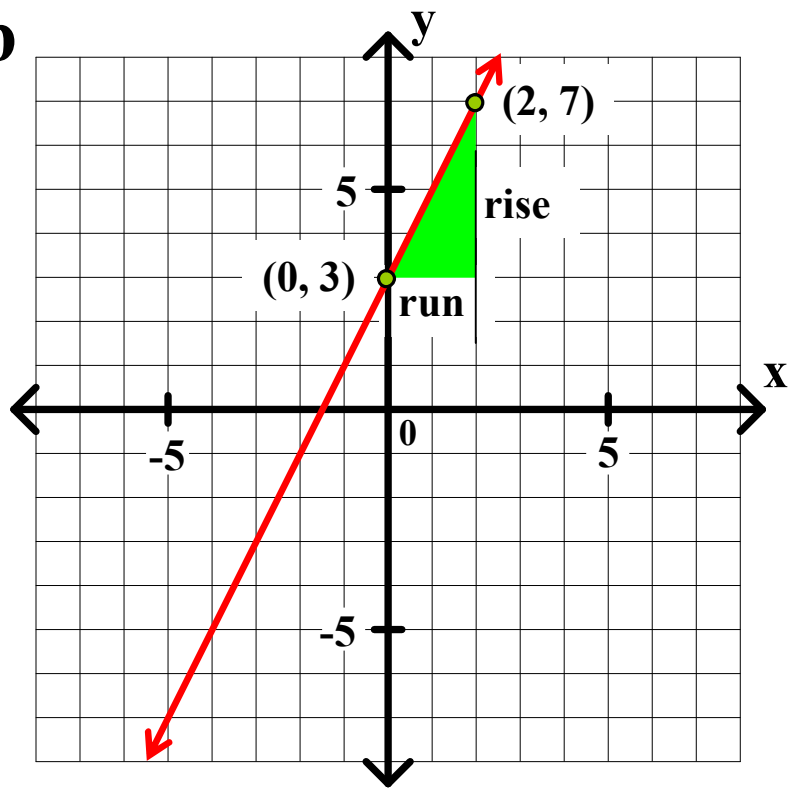

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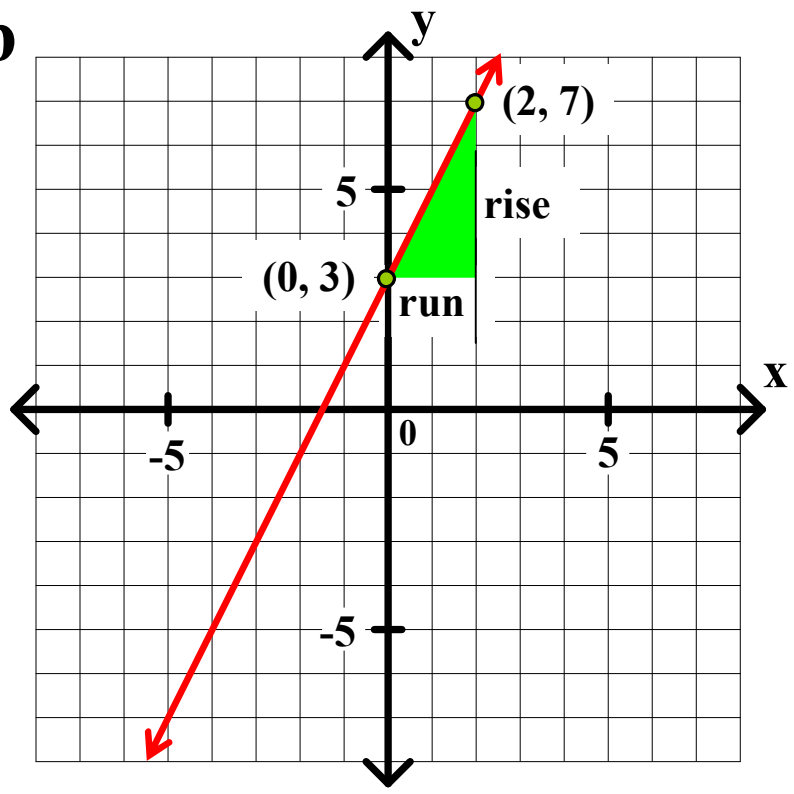

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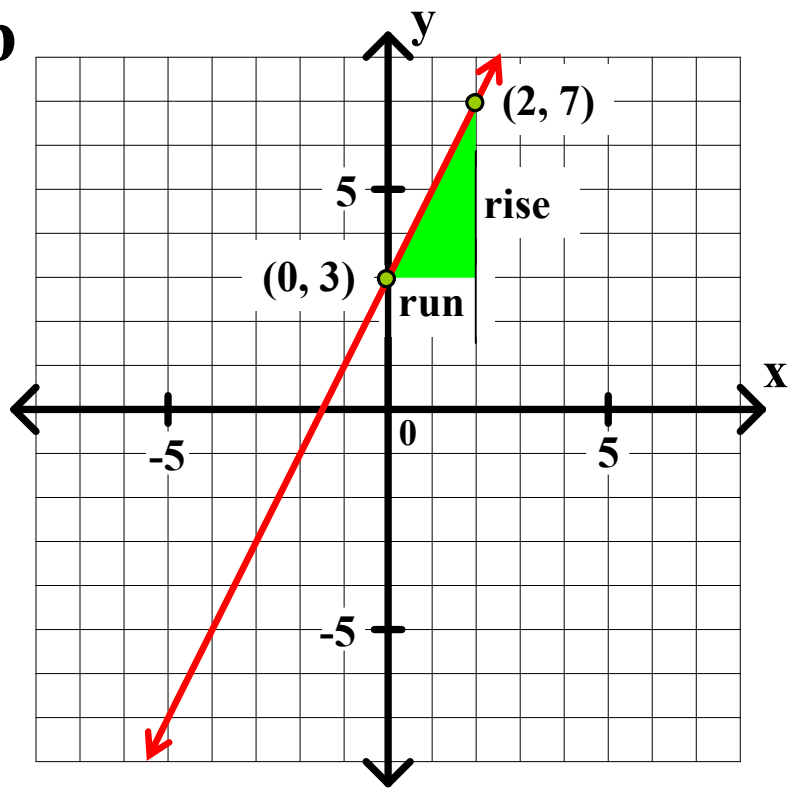

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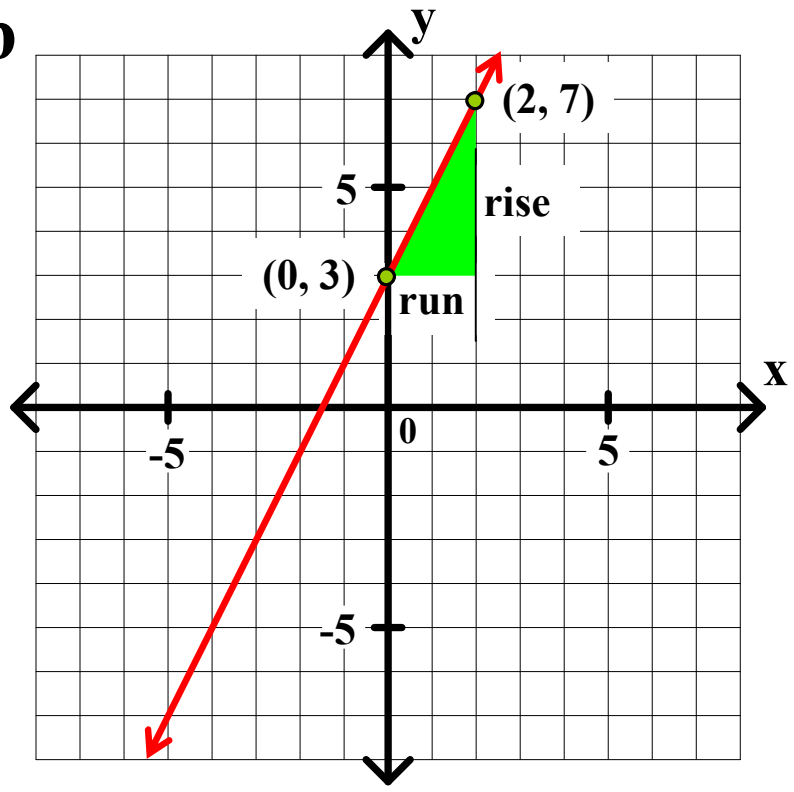

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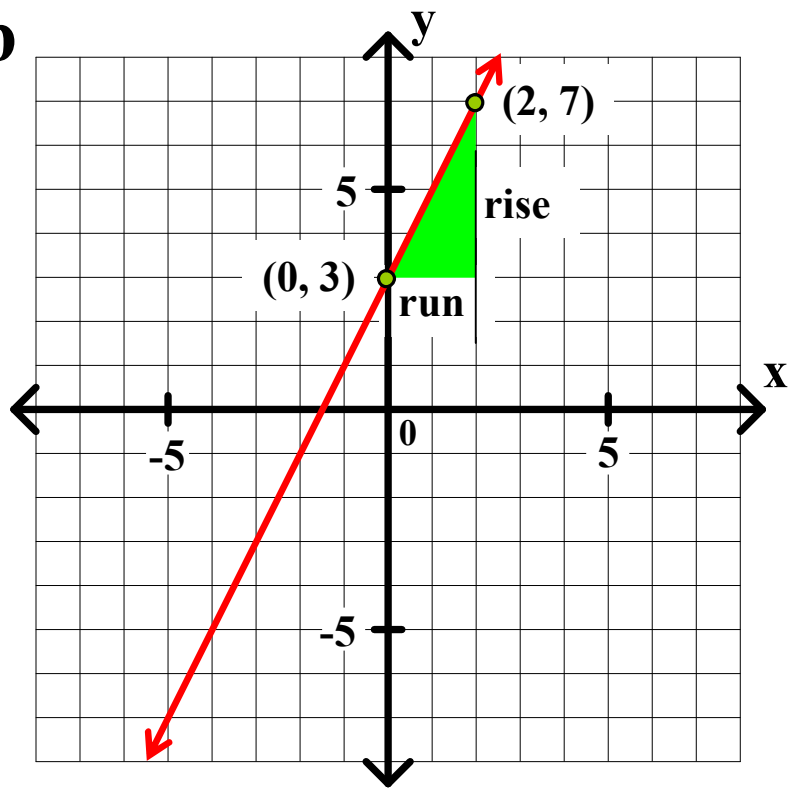

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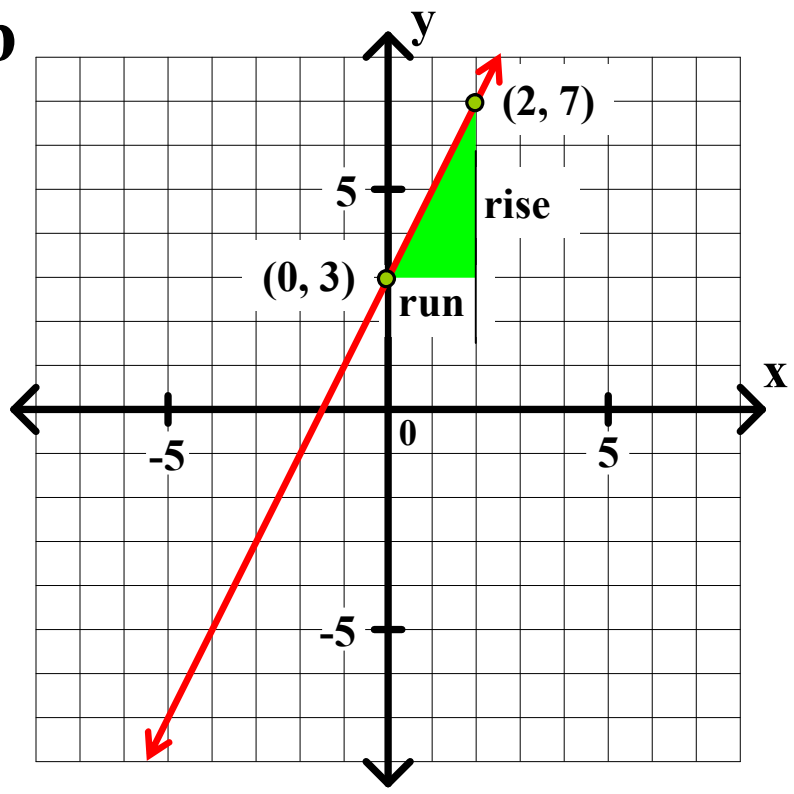

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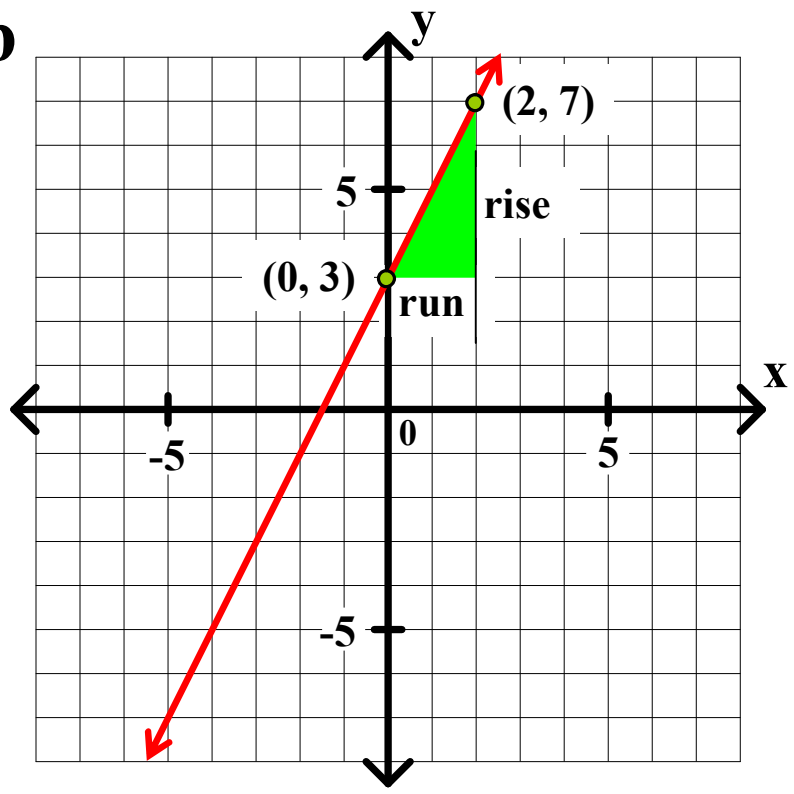

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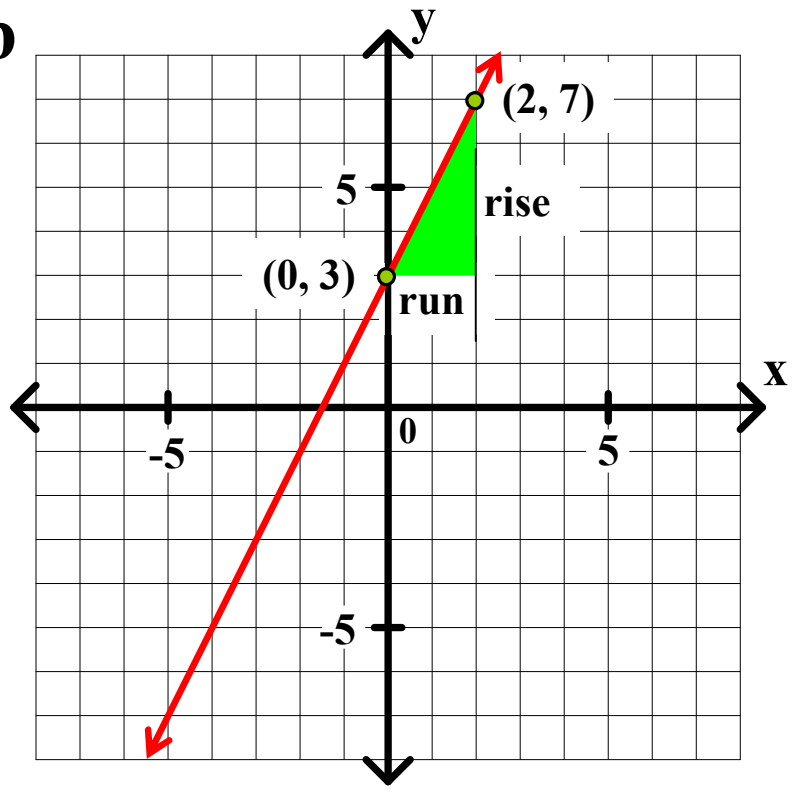

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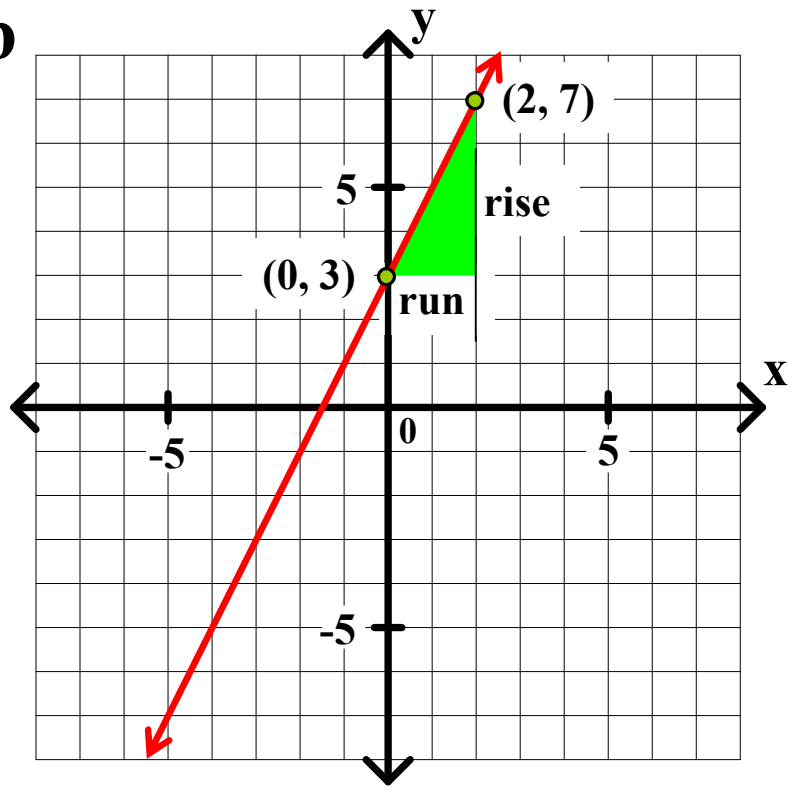

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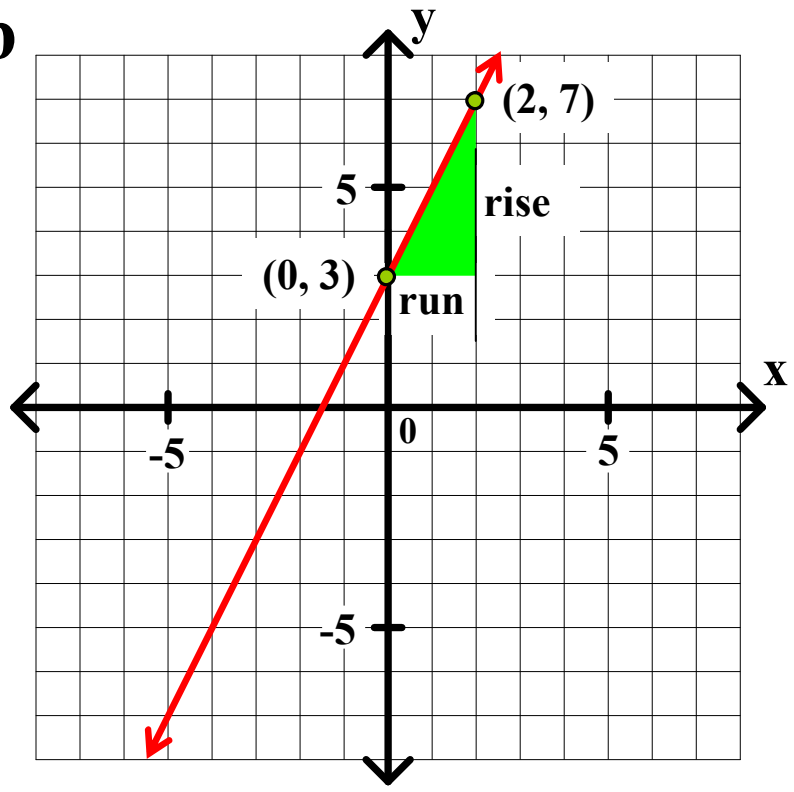

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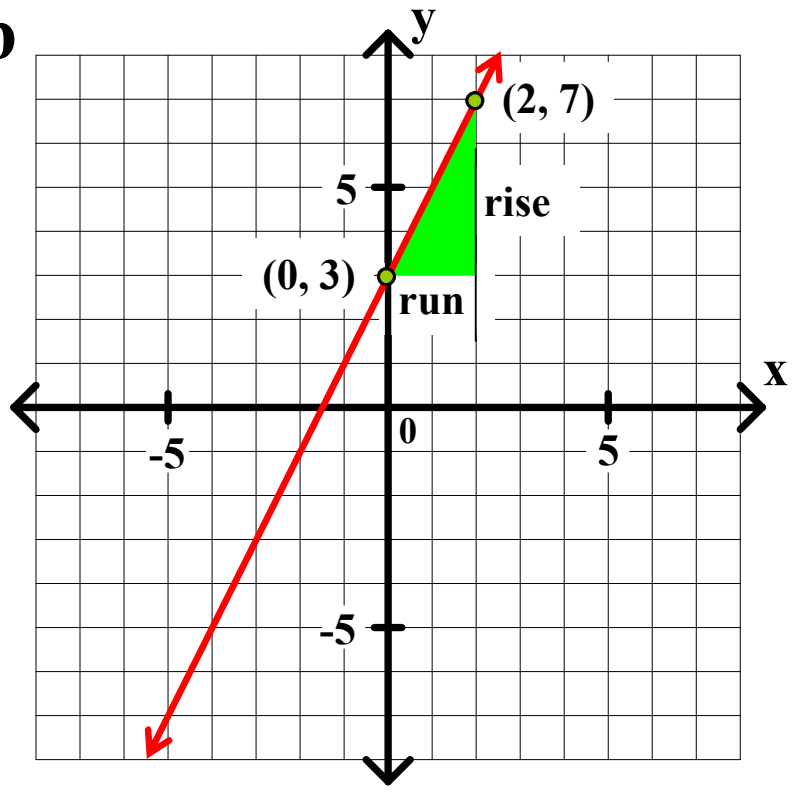

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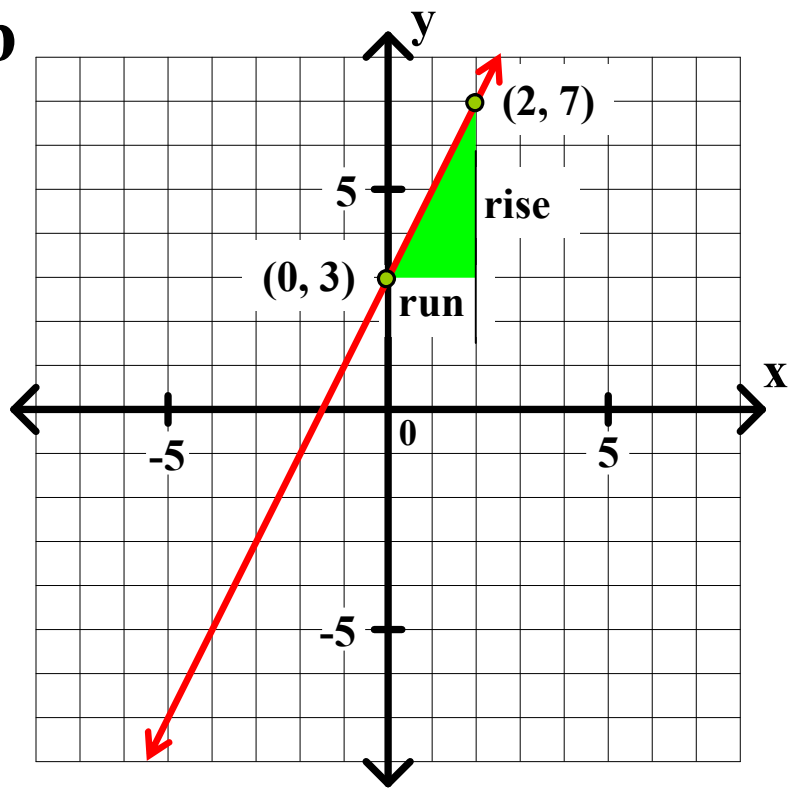

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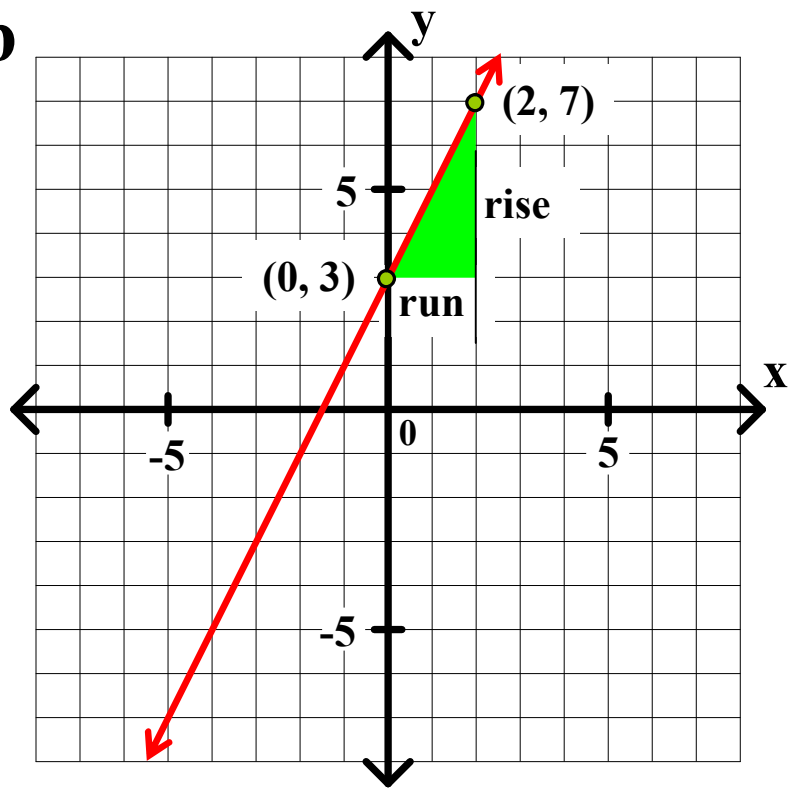

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$m = \frac{\text{rise}}{\text{run}} = \frac{7-3}{2-0} = \frac{4}{2} = 2$ **In general, m =**

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines. If the line is oblique, then write its slope-intercept equation.

11. The line through (0, 3) and (2, 7). _____

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x_1 y_1 x_2

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The point (0, 3) is on the y-axis !!

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The point (0, 3) is on the y-axis !! ⟹ $b = 3$

Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines. If the line is oblique, then write its slope-intercept equation.

11. The line through (0, 3) and (2, 7). $y = 2x + 3$

oblique line $\Rightarrow$ $y = mx + b$

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The point (0, 3) is on the y-axis !! $\Rightarrow$ $b = 3$

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Algebra I Class Worksheet #1 Unit 7

Find the equation of each of the following lines. If the line is oblique, then write its slope-intercept equation.

12. The line through (-4, 5) and (0, 2). _____

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The line is not vertical !!

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The line is not horizontal !!

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oblique line

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$m =$

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The point (0, 2) is on the y-axis !!

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Good luck on your homework !!

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