



Graphing Linear Equations

Linear Equations

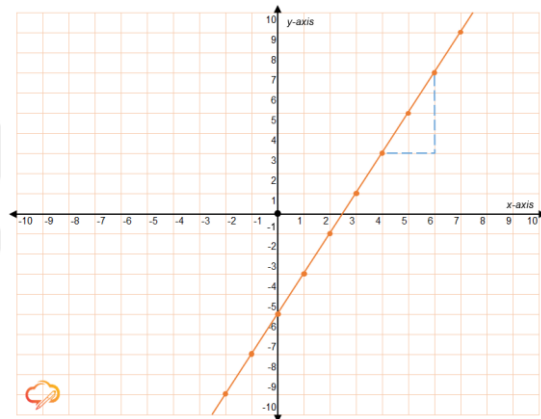
Straight lines on a graph are called linear relationships.

Equations of straight lines are written in the form:

$$y = mx + c$$

The straight line in the graph can be written using this linear equation form.

Let's go through each term together.



In linear equations,

- y = any y-value point on the line (a dependent variable)
- x = any x-value point on the line (an independent variable)
- m = slope of the line (number) $m = \frac{\text{rise}}{\text{run}}$
- c = y-intercept (number) *The point where the line cuts the y – axis*

For the example above:

1

Find the y-intercept (c)

$$c = -5$$

2

Find the slope (m)

$$m = \frac{\text{rise}}{\text{run}} = \frac{2}{1} = 2$$

3

Write the variables c and m into the equation.

$$y = 2x - 5$$

Use some points to check.

Substitute $x = 4$ in to get $y = 3$.
The ordered pair $(4, 3)$ can be found on the line.



Instructions: Fill in the blanks in the tables below.

1) Graph the linear equation $y = 3x + 1$			
x	$y = 3x + 1$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			

2) Graph the linear equation $y = 2x - 3$			
x	$y = 2x - 3$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			

3) Graph the linear equation $y = 5x + 2$			
x	$y = 5x + 2$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			



4) Graph the linear equation $y = \frac{3x}{2}$

x	$y = 3x/2$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			

5) Graph the linear equation $y = 6x - 5$

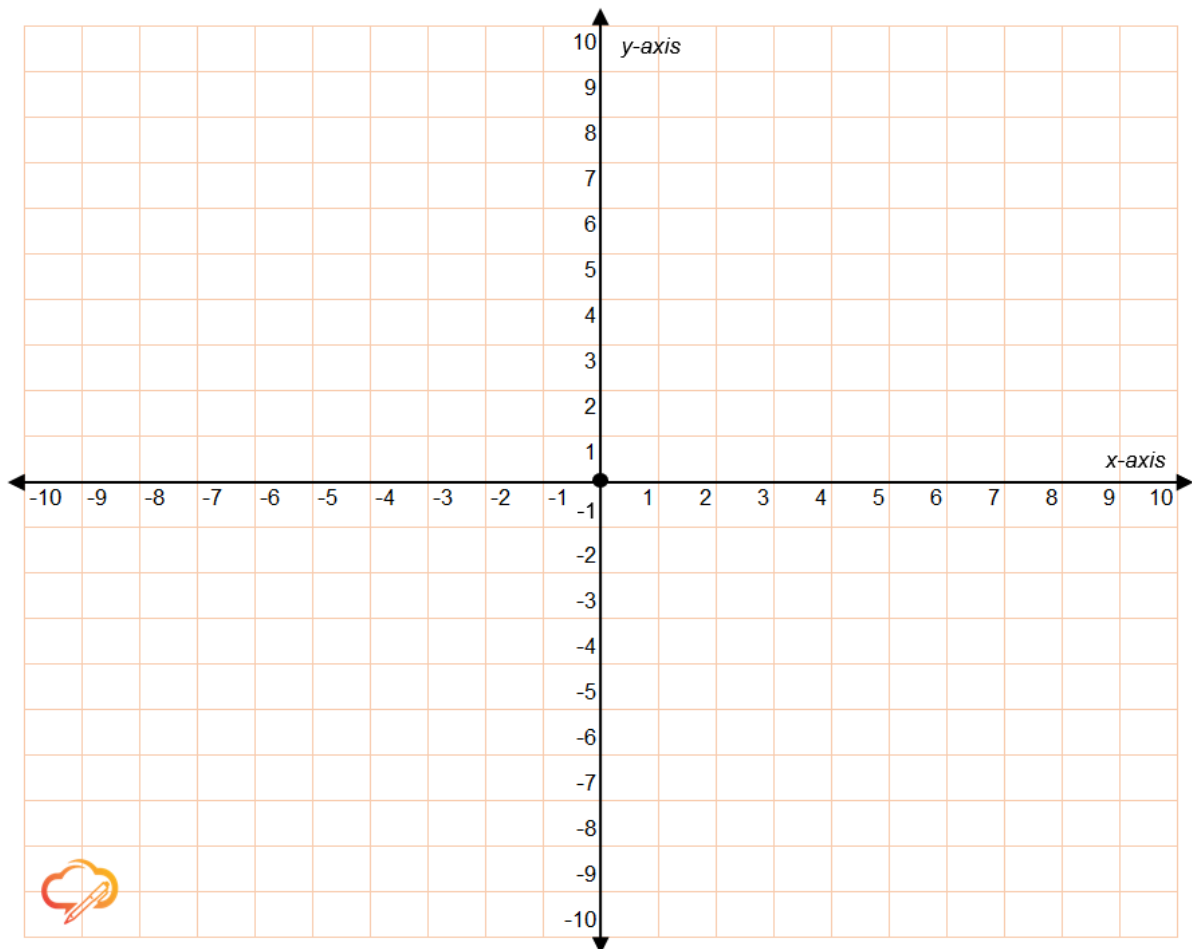
x	$y = 6x - 5$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			

6) Graph the linear equation $y = -\frac{7}{2}x$

x	$y = -7x/2$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			



Instructions: Graph each equation below. Label each equation.





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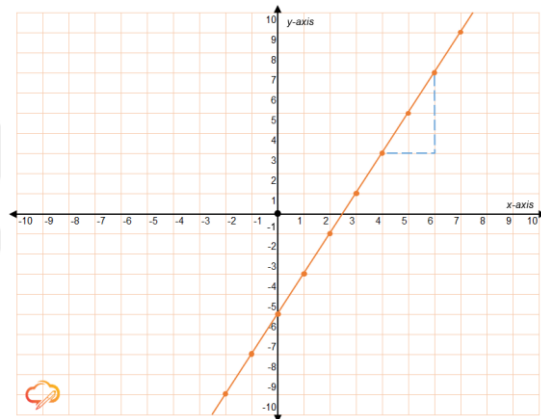
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For the example above:

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Find the y-intercept (c)

$$c = -5$$

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Find the slope (m)

$$m = \frac{\text{rise}}{\text{run}} = \frac{2}{1} = 2$$

3

Write the variables c and m into the equation.

$$y = 2x - 5$$

Use some points to check.

Substitute $x = 4$ in to get $y = 3$.
The ordered pair $(4, 3)$ can be found on the line.



Instructions: Fill in the blanks in the tables below.

1) Graph the linear equation $y = 6x$			
x	$y = 6x$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			

2) Graph the linear equation $y = 8x + 3$			
x	$y = 8x + 3$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			

3) Graph the linear equation $y = -3x + 5$			
x	$y = -3x + 5$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			



4) Graph the linear equation $y = 7x - 4$

x	$y = 7x - 4$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			

5) Graph the linear equation $y = -\frac{9}{2}x$

x	$y = -9x/2$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			

6) Graph the linear equation $y = \frac{5}{2}x - 1$

x	$y = 5x/2 - 1$	y	Ordered pairs
-3			
-2			
-1			
0			
1			
2			
3			



Instructions: Graph each equation below. Label each equation.

