

Vertical and Horizontal Lines

A line's equation usually look like $y = 3x + 2$ (slope-intercept form) or $3x + 2y = 6$ (standard form). There are two types of special lines, vertical and horizontal lines. Their equations look like $x = a$ or $y = b$.

Let's look for a pattern for the points on a horizontal line.

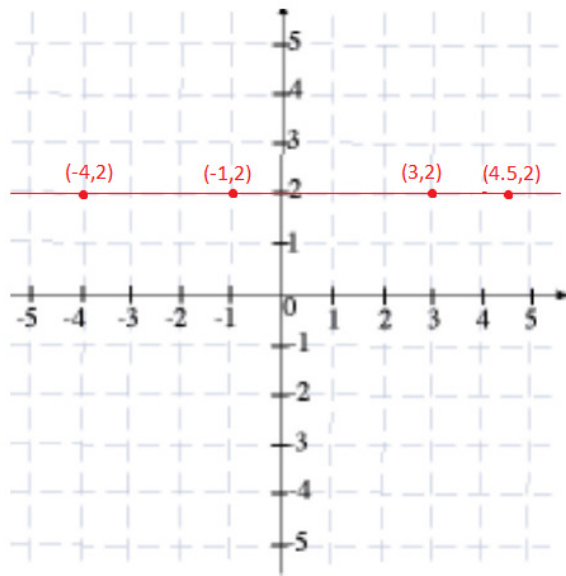


Figure 1: a horizontal line with some points marked

For the red line in Figure 1, four points are marked. Notice that their y-value is always 2. This red line's equation is $y = 2$.

Similarly, a vertical line's equation looks like $x = a$.

Instead of trying to memorize which one is which, understand the following example.

[Example 1] Graph the line $x = -3$.

[Solution] Just like when we graph a line like $y = Mx + B$, we build a table.

x values	y values	points
-3	-1	$(-3, -1)$
-3	0	$(-3, 0)$
-3	1	$(-3, 1)$

When we fill out the table, the x -value is always -3 , because the equation is $x = -3$. Then we will pick some easy numbers for the y -value.

Solution:

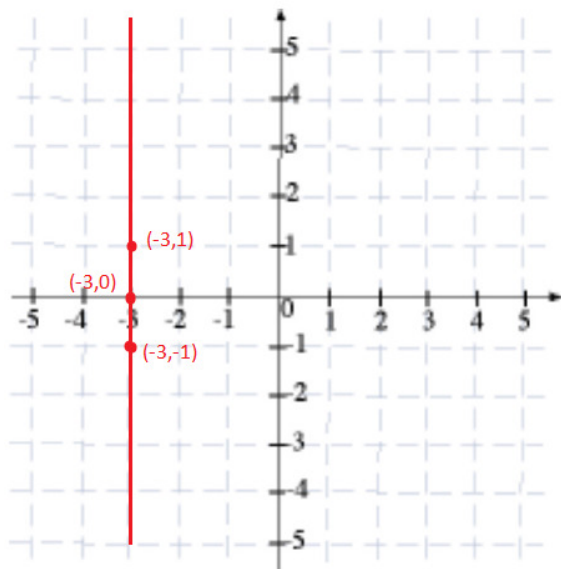


Figure 2: Graph of $x = -3$

By building a table, there is no need to memorize which type of equation is vertical or horizontal.