March 19, 2018

UNIT 6: LINEAR RELATIONS

4.3: ANOTHER FORM OF THE EQUATION FOR A LINEAR RELATION

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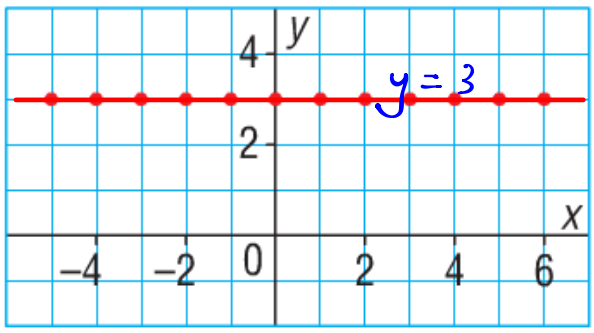
MATH 9

WHAT'S THE POINT OF TODAY'S LESSON?

We will continue working on the Math 9 Specific Curriculum Outcome (SCO) "Patterns and Relations 2" OR "PR2" which states:

"Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems."

HOMEWORK QUESTIONS?
(pages 170 -173 4-16; page 181 3-5; page 201 4-6)



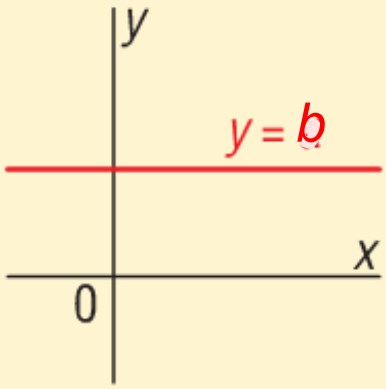
x	y
1	3
4	3
−2	3
5	3
6	3

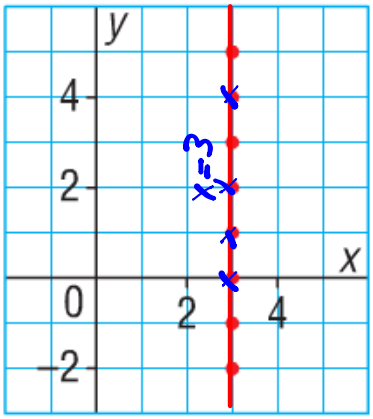
Equation?

$y = 3$

horizontal

The graph of the equation $y = b$, where b is a constant, is a horizontal line. Every point on the graph has a y-coordinate of b.





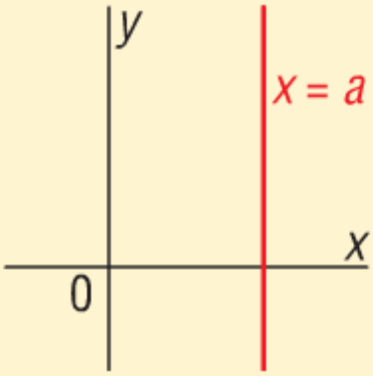
Equation?

$x = 3$

Vertical

x	y
3	0
3	4
3	2
3	1
3	5

The graph of the equation $x = a$, where a is a constant, is a vertical line. Every point on the graph has an x-coordinate of a.



Example 1 Graphing and Describing Horizontal and Vertical Lines

For each equation below:

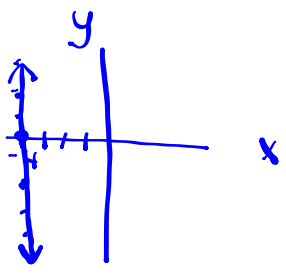
i) Graph the equation.

ii) Describe the graph.

a) $x = -4$

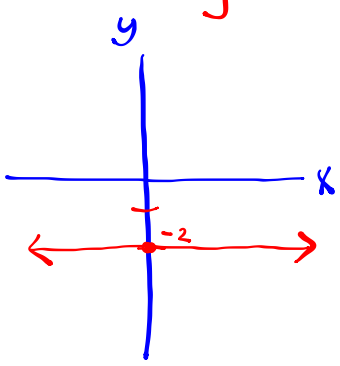
b) $y + 2 = 0$

c) $\frac{2x}{2} = \frac{5}{2}$



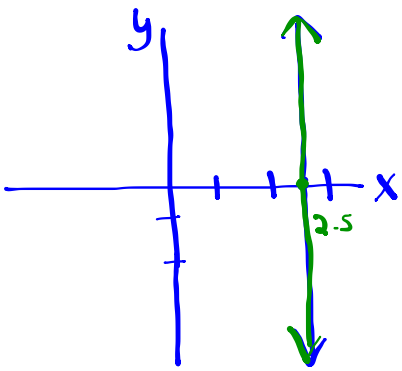
Vertical

x-int = -4



horizontal

y-int = -2



Vertical

x-int = 2.5

Example 2 Graphing an Equation in the Form $ax + by = c$

For the equation $3x - 2y = 6$:

a) Make a table of values for $x = -4, 0$, and 4.

b) Graph the equation.

$-3x \quad -3x$

$3x - 2y = 6$

$\frac{-2y}{-2} = \frac{-3x}{-2} + \frac{6}{-2}$

$y = \frac{3}{2}x - 3$

Example 2 Graphing an Equation in the Form $ax + by = c$

For the equation $3x - 2y = 6$: $y = \frac{3}{2}x - 3$

a) Make a table of values for $x = -4, 0$, and 4.

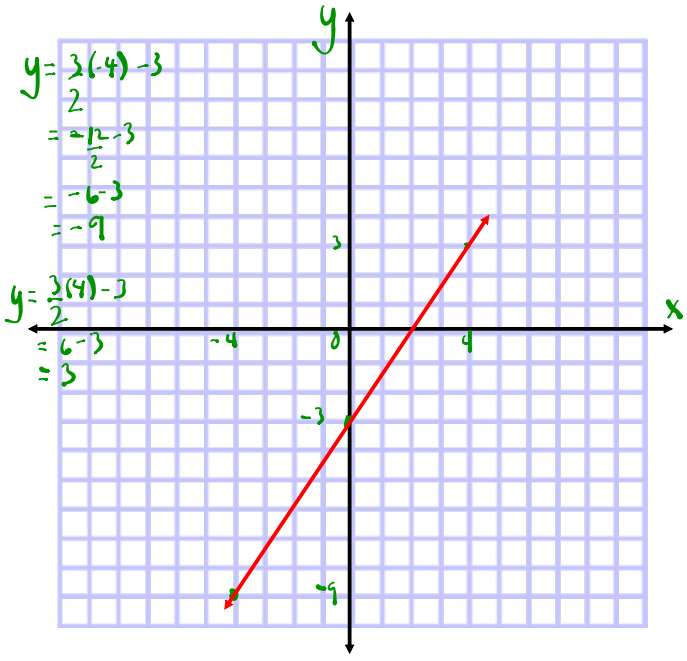
b) Graph the equation.

x	y
−4	-9
0	-3
4	3

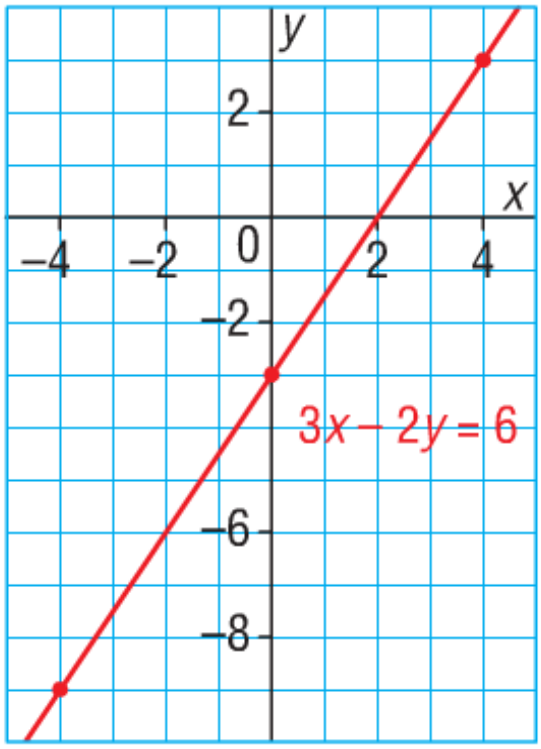
$y = \frac{3}{2}(0) - 3$

$= 0 - 3$

$= -3$



x	y
−4	−9
0	−3
4	3

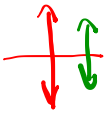


PLEASE TURN TO PAGE 178 IN *MMS9.*

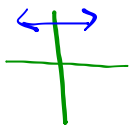
"Discuss the Ideas":

1. **The equation of an** oblique **line has** 2 **variables; the equation of either a** vertical **or** horizontal **line only has** 1 **variable.**

2. **They think of the x-axis being** horizontal (y=0)**.**
   Think the opposite for x = a !!!

3. **a) x = a (**vertical **line)** 

   b) y = a (horizontal **line)**



PLEASE TURN TO PAGE 178 IN *MMS9.*

"Discuss the Ideas":

1. **The equation of an oblique line has 2 variables ("x" and "y"); the equation of either a horizontal line ("y") or vertical line ("x") only has 1 variable.**

2. **They think of the x-axis being horizontal. Think the opposite for x = a; think of where the line crosses an axis in the graph. A vertical line (x = a) crosses the x-axis!!! Its equation is x = x-intercept.**

3. **a) x = a (vertical line; x = x-intercept)**

   b) y = b (horizontal line; y = y-intercept)

CONCEPT REINFORCEMENT:

MMS9:

PAGE 178: #4, 5 and 7
PAGE 179: #8, 9, 10, 11, 12, 13(a), and 14
PAGE 180: #15, 17, and 18
PAGE 181: #6 and #7
PAGE 201: #7
PAGE 202: #8, 9 and #10