

March 19, 2019

UNIT 6: LINEAR RELATIONS

**4.3: ANOTHER FORM OF THE
EQUATION FOR A
LINEAR RELATION**

**K. SEARS
MATH 9**

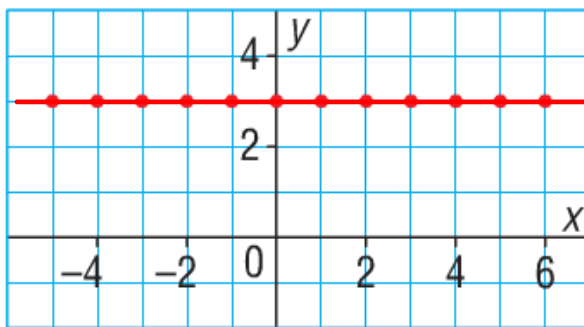


WHAT'S THE POINT OF TODAY'S LESSON?

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."

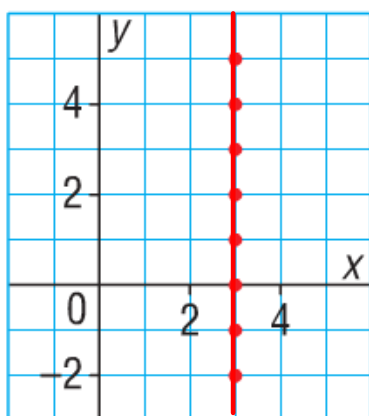
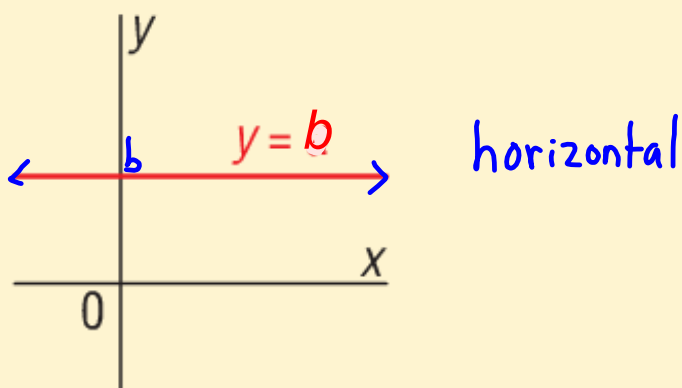
HOMWORK QUESTIONS?
(pages 170 / 171, #8, 9, 10, 11, 13, 14, 15)
Practice Exercises 4.1 & 4.2



Equation? $y=3$

x	y
6	3
5	3
0	3
-2	3
-5	3

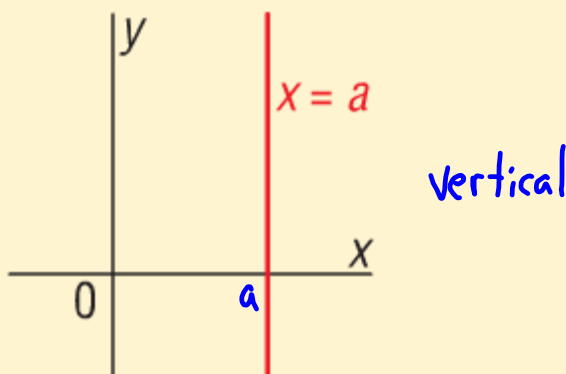
The graph of the equation $y = b$, where b is a constant, is a horizontal line. Every point on the graph has a y -coordinate of b .



Equation? $x = 3$

x	y
3	-2
3	-1
3	0
3	1
3	2

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

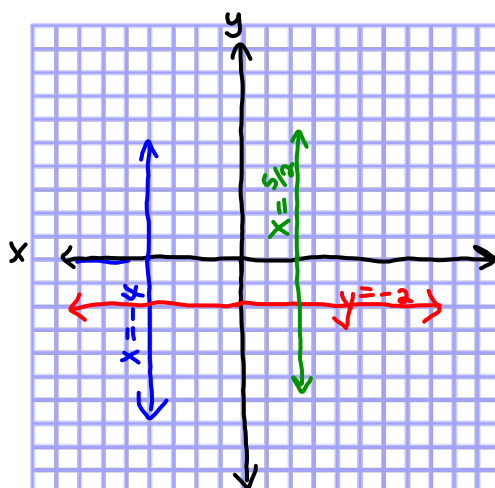
For each equation below:

- i) Graph the equation.
- ii) Describe the graph.

a) $x = -4$

b) $y + 2 = 0$
 $y = -2$

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

x	y
-4	-9
0	-3
4	3

$$3(-4) - 2y = 6$$

$$\begin{matrix} +12 \\ -12 - 2y = 6 + 12 \end{matrix}$$

$$\frac{-2y = 18}{-2 \quad -2}$$

$$y = -9$$

$$3(0) - 2y = 6$$

$$\begin{matrix} -2y = 6 \\ -2 \quad -2 \end{matrix}$$

$$y = -3$$

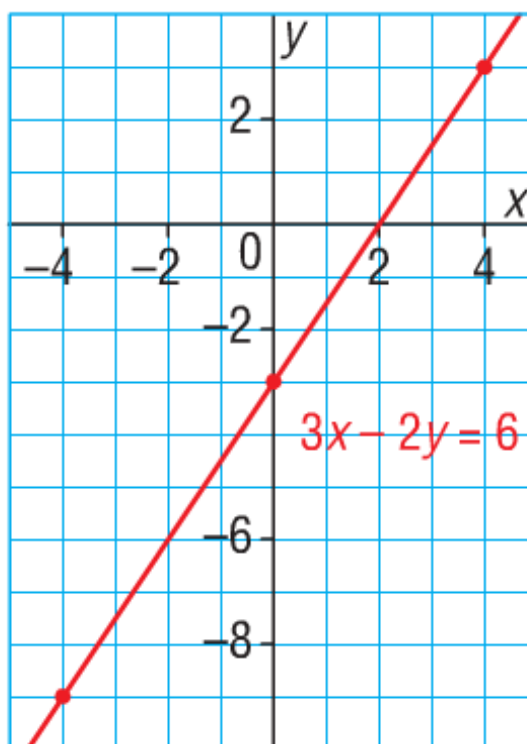
$$3(4) - 2y = 6$$

$$\begin{matrix} 12 - 2y = 6 \\ -12 \quad -12 \end{matrix}$$

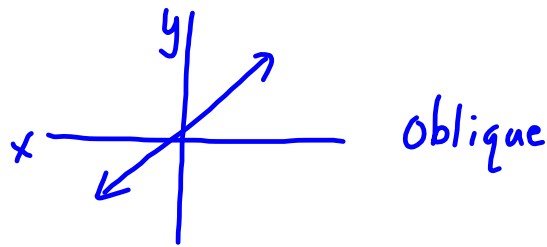
$$\frac{-2y = -6}{-2 \quad -2}$$

$$y = 3$$

x	y
-4	-9
0	-3
4	3



$x + y$ equation



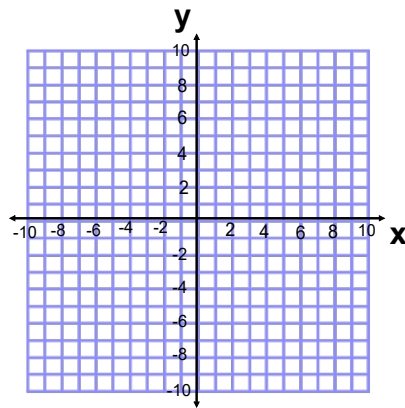
PLEASE TURN TO PAGE 178 IN *MMS9*.

"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)

WARM UP: Graph the following 5 LINEAR relations on the grid below.

$y = 3x$	$y - x = -6$	$x = -4$	$y = -8$																																								
<table border="1"><tr><th>x</th><th>y</th></tr><tr><td>0</td><td></td></tr><tr><td>1</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>3</td><td></td></tr></table>	x	y	0		1		2		3		<table border="1"><tr><th>x</th><th>y</th></tr><tr><td>0</td><td></td></tr><tr><td>1</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>3</td><td></td></tr></table>	x	y	0		1		2		3		<table border="1"><tr><th>x</th><th>y</th></tr><tr><td>0</td><td></td></tr><tr><td>1</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>3</td><td></td></tr></table>	x	y	0		1		2		3		<table border="1"><tr><th>x</th><th>y</th></tr><tr><td>0</td><td></td></tr><tr><td>1</td><td></td></tr><tr><td>2</td><td></td></tr><tr><td>3</td><td></td></tr></table>	x	y	0		1		2		3	
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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

MID-UNIT REVIEW:

MMS9:

PAGE 181: ALL! (#1 to #7)