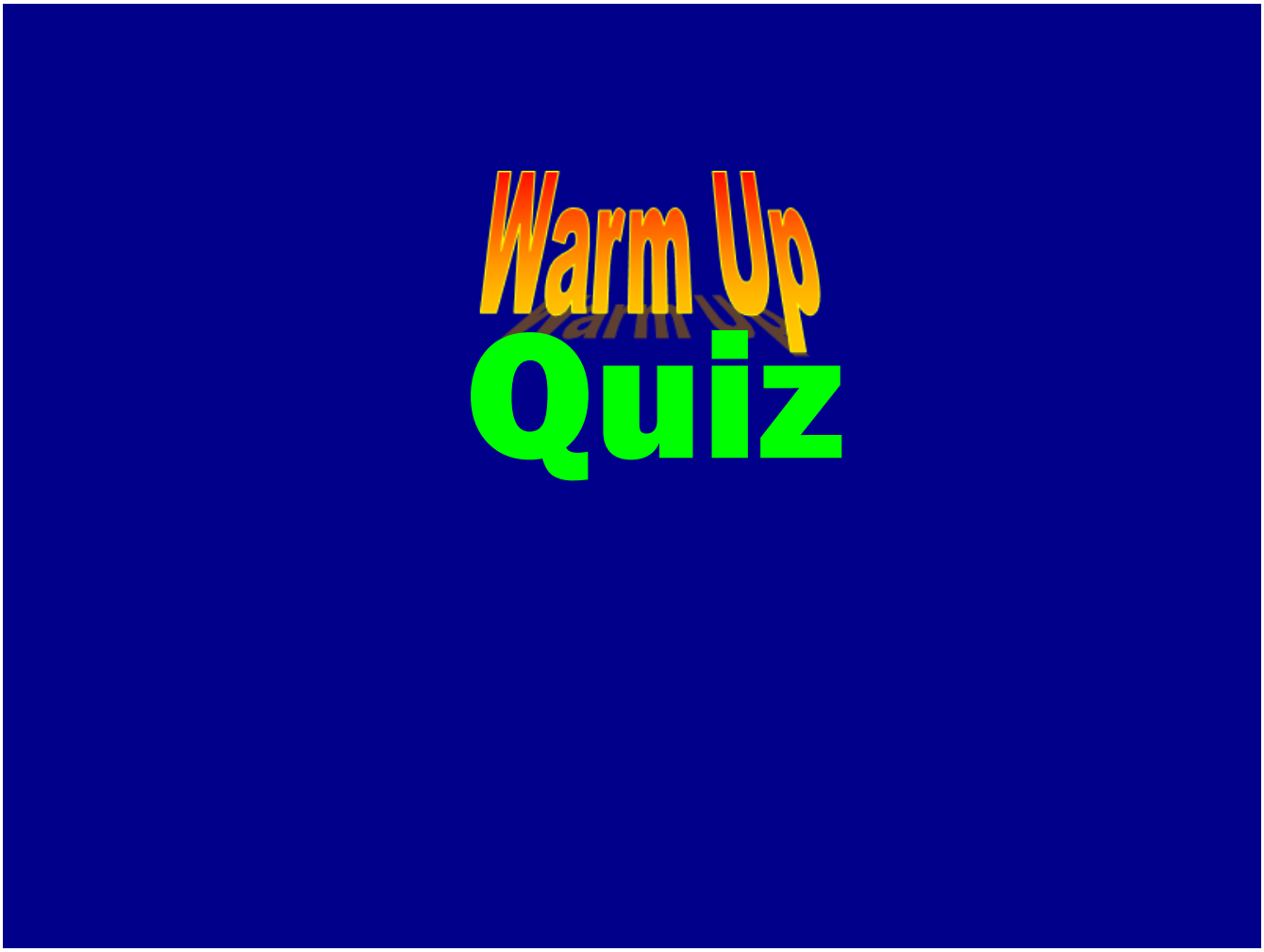
Curriculum Outcomes:

(PR1) Generalize a pattern arising from a problem-solving context using linear equations and verify by substitution.

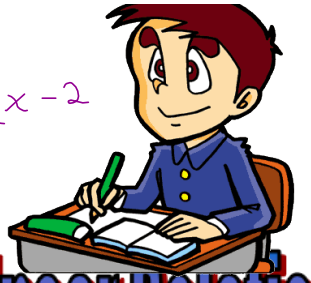
(PR2) Graph linear relations, analyze the graph and interpolate or extrapolate to solve problems.

Student Friendly: Looking at a graph or t-table and determining if they are linear or non-linear or discrete or continuous


Warm Up
Quiz

$y = \frac{\Delta y}{\Delta x} x \pm \#$

$y = \frac{3}{1}x - 2$

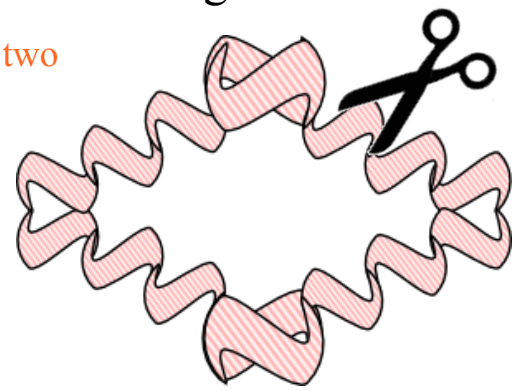


Section 4.3

Another Form of the Equation for a Linear Relation

Suppose you have a piece of ribbon 20 cm long.

How many different ways could you cut it into two pieces?



The following table indicates the length of one piece (x), you fill in the length of the second(y)

x First Piece	y Second Piece
1	19
2	18
3	17
4	16
5	15
5.5	14.5
6	14
7	13
8	12
9	11
10	

$x + y = 20$

$y = -x + 20$

Can you have half sizes???

How are the two lengths of the pieces, (x and y), related?

Can you represent this as an equation?

Class/Homework

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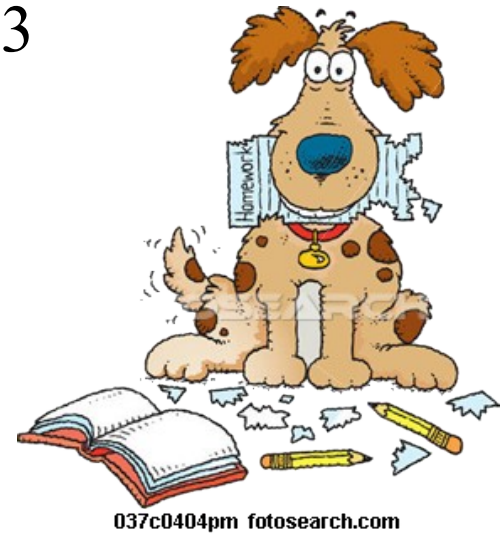
# 7 d, # 8	#11,
# 9 c	# 14
#10 c,e	#16



You try

Two numbers have a sum of 5

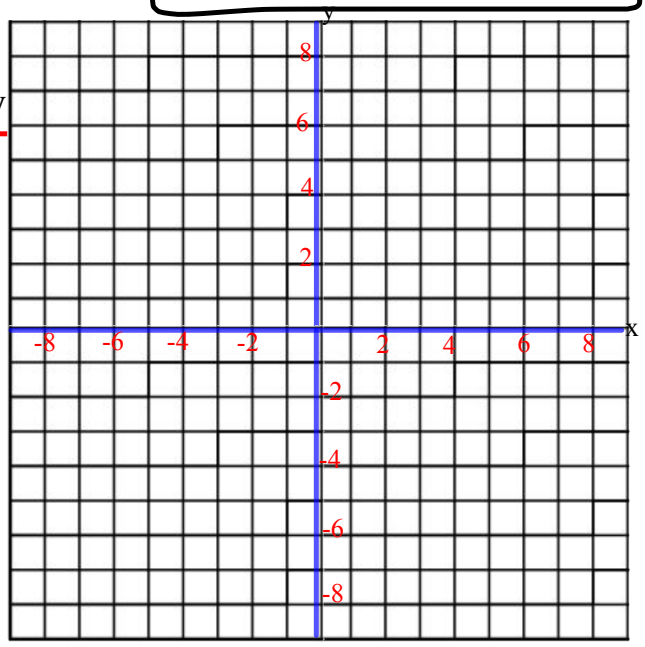
Write an equation: $x + y = 5$

$y = -x + 5$

$y = \frac{-1}{1}x + 5$

$\Delta x = 1$ $\Delta y = -1$

First Integer, x	Second interger, y
-2	7
-1	6
0	5
1	4
2	3



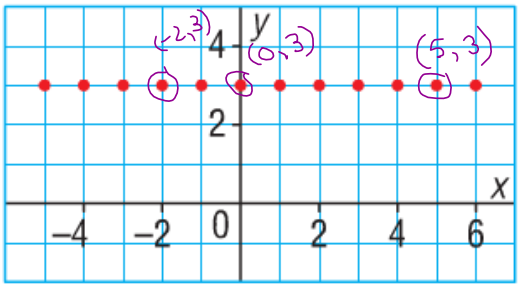
Is this a straight line?

Both variables on the left side of the equation

$ax + by = c$ a, b, c are just #

This is just another way to write the equation of a linear relation.

Horizontal vs. Vertical

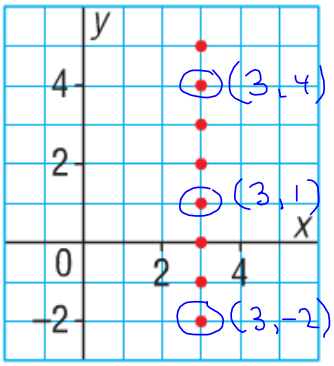


(x , 3)

$y = 3$

no x

For every 'x' value y will always equal 3



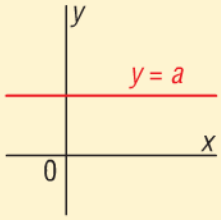
(3, y)

$x = 3$

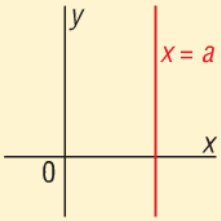
no y

For every 'y' value x will always equal 3

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



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.



For each equation below:
i) Graph the equation
ii) Describe the graph.

a) $x + 7 = 0$ -7 -7

$x = -7$

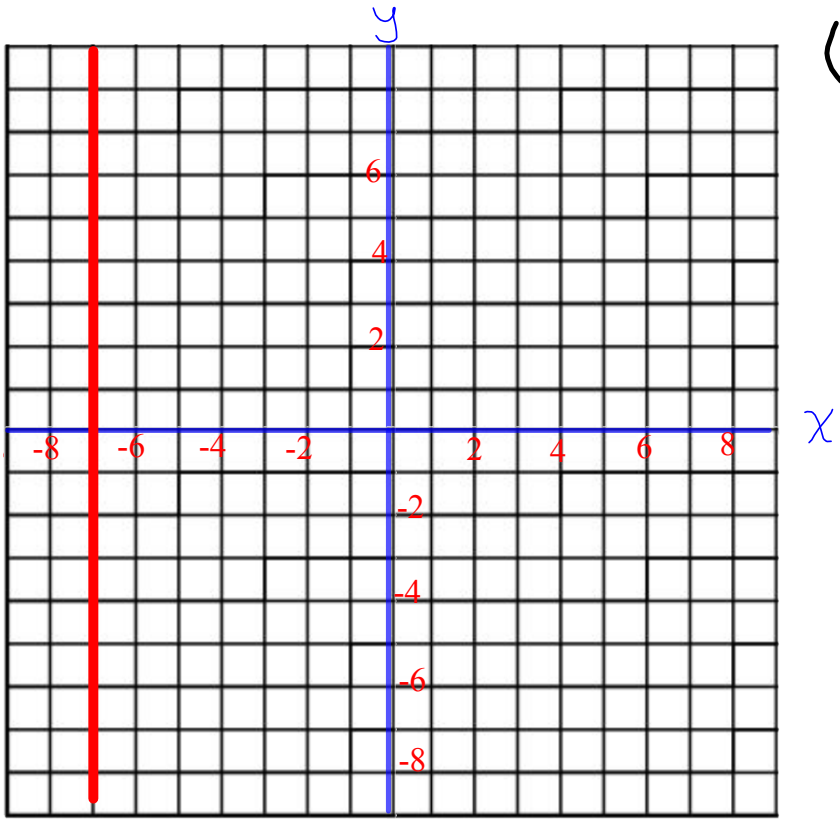
Vertical

$(-7, y)$

$(-7, 0)$

$(-7, 1)$

$(-7, 2)$



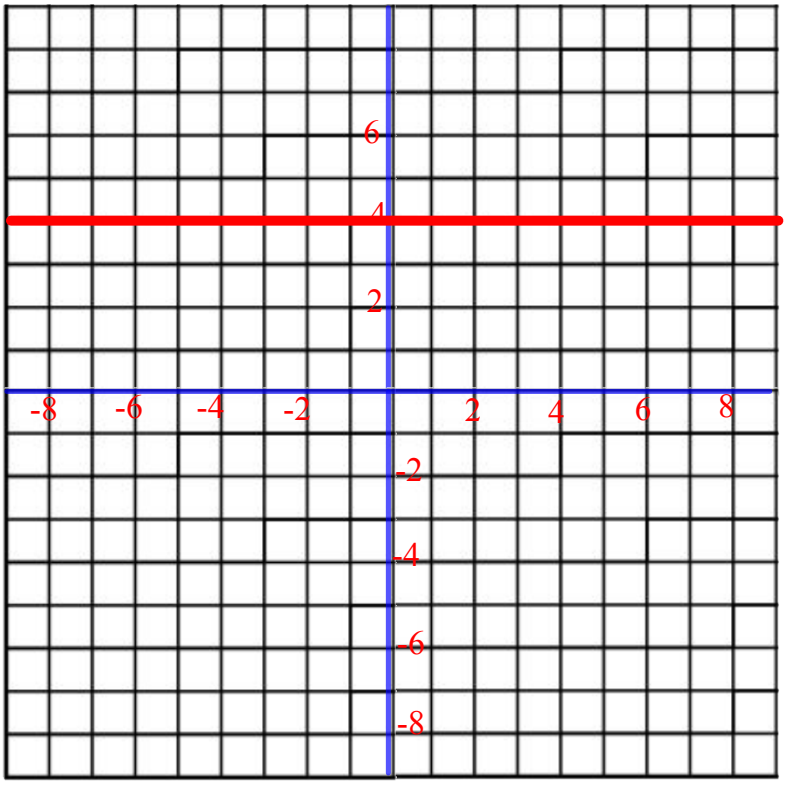
For each equation below:
i) Graph the equation
ii) Describe the graph.

b) $2y = 8$

$\frac{2y}{2} = \frac{8}{2}$

$y = 4$

Horizontal



Oblique Lines

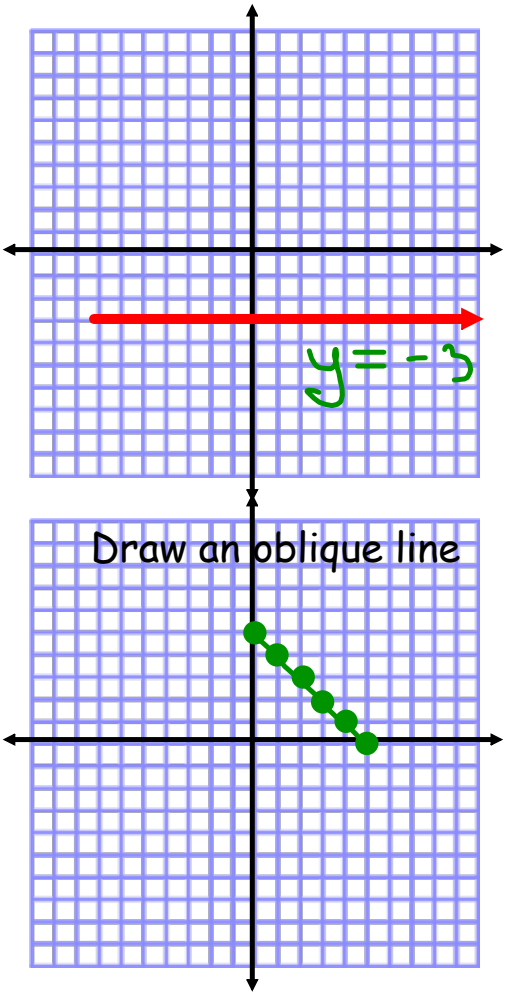
An oblique line can be diagonal, sloping or slanted. It is not vertical, horizontal, parallel or perpendicular

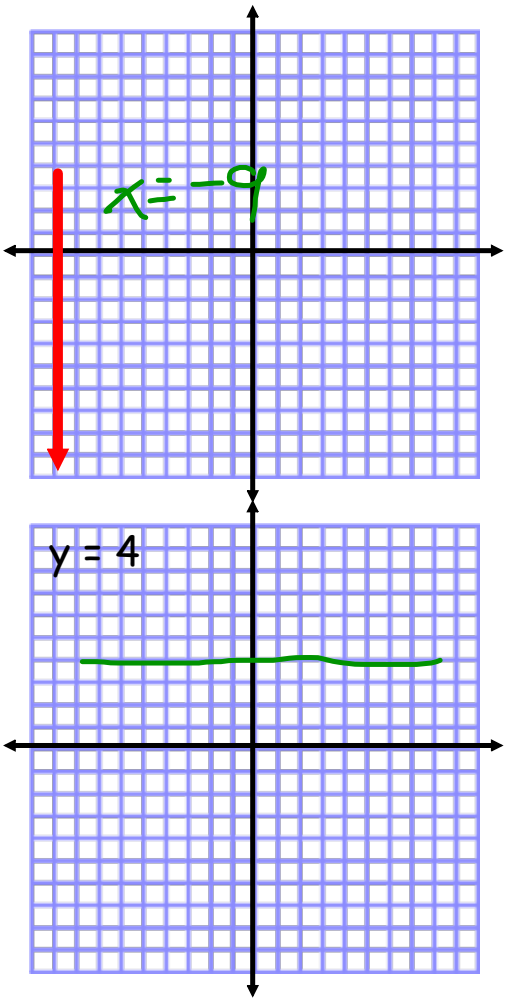
$|$ $\quad$ $\underline{\quad}$ $\quad$ $\rightleftharpoons$ $\quad$ $\perp$

example:

$x + y = 7$

$y = -3x + 2$


y = -3
Draw an oblique line


x = -9
y = 4

Attachments

Section 4.3 Worksheet.pdf