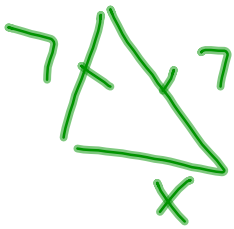
Algebra 4-9: Graphing Linear Patterns

Warm-Up

For 1-6, determine whether or not the following numbers could represent the lengths of the sides of a triangle. Show why or why not.

1. 1, 3 & 7 — 1+3>7, 4>7, no
2. 3, 8 & 8 — 3+8>8, 11>8, yes
3. 4, 4, & 4 — 4+4>4, 8>4, yes
4. 2, 3, & 4 — 2+3>4, 5>4, yes
5. 6, 1 & 5 — 1+5>6, 6>6, No
6. 9, 11, & 17 — 9+11>17, 20>17, yes

7. An isosceles triangle has side-lengths of 7, 7, and x. What are the possible lengths of x? Write your answer as a **compound inequality**. (If you don't know what "Isosceles" means, look it up.)



$0 < x < 14$

$x + 7 > 7$
$-7 \quad -7$
$x > 0$

$7 + 7 > x$
$14 > x$

December 02, 2013

Vocabulary	Definition	Example
Constant-Increase	· goes up at the same rate	· earn $10 an hour
Constant-Decrease	· goes down at the same rate	· spend $15 each week
Linear Equation $y = 5x + 3$	· has 1 or 2 variables · When graphed it forms a line	$x + y = 10$ $3y + 2 = x$ $x = 3$ $y = 5$

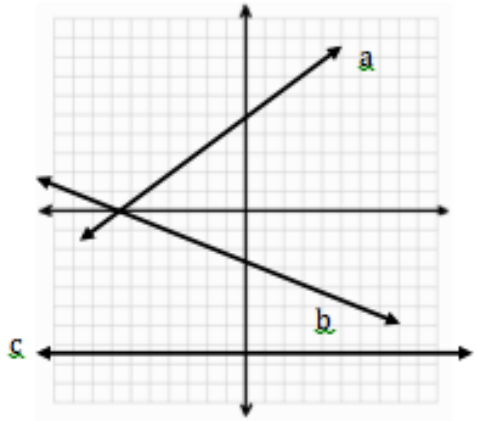
What word is in the word **Linear**? (Besides "ear") Line

Therefore, what do you think we are graphing today? Lines

Examples

Use the figure to label each line as a constant-increase, constant-decrease, or no increase or decrease.

1. Line a increase
2. Line b decrease
3. Line c No increase or decrease



4. Suppose you have $15 saved from babysitting and you continue to save $5 each week. After w weeks, how much money will you have?

a. If t represents the total amount of money you have after w weeks, write an equation involving t and w.

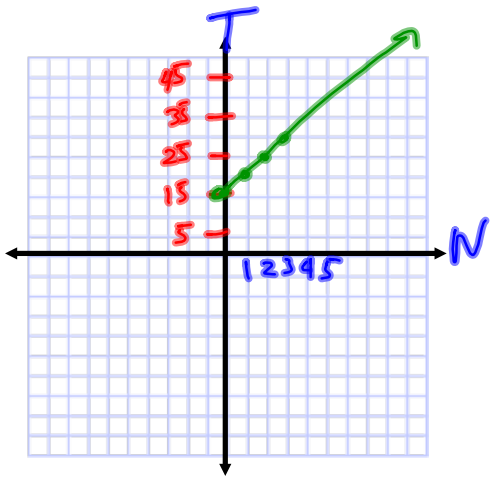
$t = 15 + 5w$

$y =$

b. Make a table to represent your total money t after w weeks.

x: w	y: t	
0	15	$15+5(0)$
1	20	
2	25	$15+(5)(2)$
3	30	

c. Graph your total money t after w weeks.



5. Make a table for each equation.

a. y = 2x

x	y
-1	-2
0	0
1	2
2	4

$y = 2(-1)$
$y = 2(0)$
$y = 2(1)$
$y = 2(2)$

b. y = -2x + 1

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

$-2(-1) + 1$
$-2(0) + 1$
$-2(1) + 1$
$-2(2) + 1$

c. y = x - 3

x	y
-1	-4
0	-3
1	-2
2	-1

$-1 - 3 = -4$
$0 - 3 = -3$
$1 - 3 = -2$
$2 - 3 = -1$