## **Continuous Patterns** = mx + b

Review:

Write the next two numbers in the

Use the following sequence to... 34, 25, 16, 7....

51) Write the next two terms.

-2, -11Write the next-now statement

A3) Write the recursive form.

Write the explicit form.  $t_0 = 344 - 9(n-1)$ 

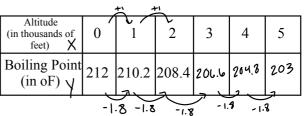
15) Find the 50th term.

Review:

What are the TWO names of sequences that are formed from addition or subtraction?

New: Goal: Continuous Patterns y = mx + b

Let's look at a real world situation that uses arithmetic/linear sequences.



What is the pattern in each?

M= 
$$\frac{\Delta y}{\Delta x} = \frac{-1.8}{1}$$
 Common D: florence

What if someone lives at an altitude of 150 thousand feet? What is their boiling point?

This sequence actually represents a **continuous** function because you can have other entries on your chart other than whole numbers.

So rather than writing a recursive or explicit form of the general altitude chart, we need to write an equation that will take into account every inch between 0 feet and 1000 feet, and 2000 feet, etc.

Writing a Continuous Equation from a Sequence

Step 1: Turn the sequence into a chart

	X	(Term)	l	2	3	4
	у	(Number)	Ļ	8	15	22
+17						

Step 2: Find the common difference: 7

Step 3: Find the 0 term (Term) (Number) 8 15 22

Step 4: Plug in the values as follows Y-int

## Day 4 Notes.notebook

## **December 16, 2013**

Altitude (in thousands of feet)	0	1	2	3	4	5
Boiling Point (in °F)	212	210.2	208.4	206.6	204.8	203

Continuous Equation: 
$$\sqrt{=\text{C.D.x} + 0 \text{ teem}}$$
  
 $\sqrt{=-1.8x + 2.12}$ 

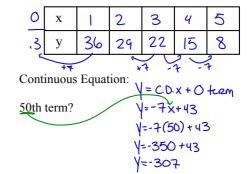
What would be the boiling point at 100 thousand feet?

Try this:

Make a chart and write a continuous equation with the following stipulations:

•The common difference is -7

•The 3rd term is 22



If the 2nd and 3rd terms are 29 and 42 and there is a common difference, find the first 5 terms and write a continuous equation.

X	1	2	3	4	5
у	0	29	42	55	68

Continuous Equation:  $y = 13 \times +3$ 

90th term?

