**Precalc BC Convergence and Means Name:**

1. Frank has $12,876 in a savings account today. What was the value of the account 6 years ago assuming the annual interest has been 5.75% compounded monthly?



1. What value does the sequence  approach as *n* gets larger and larger? Enter as an explicit sequence in your calculator and use the table.
2. Let *u* be the Fibonacci sequence: , with . Then let . *Be sure you are in sequential, not simultaneous, mode.* To what value does  converge?
3. A sum of money is invested at a constant rate of interest compounded annually. If the investment was worth $13,604.89 in 2012, and $15,868.74 in 2014, what was the value of the investment in 2013?
4. A sequence begins 16, x, 4, y, …. Find x and y if the sequence is

a) Arithmetic b) Geometric c) Harmonic

1. A cup of coffee is cooling in a room at 70°F. The initial temperature of the coffee is 195° and 10 minutes later the temperature is 118°. What was the temperature at 5 minutes to the nearest degree? (Remember to use relative values).
2. A biker can ride up a 1 mile hill at 8 mph and 1 mile back down at 32 mph. What is the average speed going up and down the hill? *(NOT 20 mph)*
3. Under what circumstance does each of the following sequences converge? (*Experiment, think about it).*

a) Arithmetic: b) Geometric: c) Harmonic:

1. On a guitar the distance between the nut (top) and bridge (bottom) is 28 inches. If an open string is an A, and half a string is an A, one octave higher, where should a guitarist place her finger to play an E (the note most *harmoniously* placed between the two A’s)?
2. Enter each of the recursively defined sequences below into your calculator. Determine what values (if any) they approach as *n* increases. {*Remember to use brackets for values of* }.
   1. 
   2. , *use radians*

*c.* , *try values* . *Can you find a number so that the sequence will converge? Hint: this is a golden opportunity.*

Not done 2015

1. a) To what value does the logistic sequence converge for k = 2.5?

b) Can you find a value of *k* (3 ≤ k ≤ 4) for which the sequence will oscillate between 4 values?