Name_____

Date_____

Advanced Algebra

Unit 1: Sequence and Series Assignment #11

Find the partial sum of the given arithmetic sequence

1) $\sum_{n=1}^{50} n$
2) $\sum_{n=1}^{100} 5n$
3) $\sum_{n=51}^{100} n$
4) $\sum_{n=1}^{20} (2n+1)$

Write the arithmetic recursive formula for the given information:

5) $U_1 = 5$ and $d=6$
6) $U_1=5$ and $d= (-3/4)$
7) $U_8 = 26$ and $U_{12} = 42$
8) $U_6 = -38$ and $U_{11} = -73$

Limits another word for this is LONG RUN VALUE: I can find any limit by clicking it out on my calculator. You can do this very fast. You do not need to count how many times you do it. You can also study the chart that we put in out notes.

9) $\begin{cases} U_{0=}126 \\ U_n = .825 * U_{(n-1)} + 18 \\ n \geq 1 \end{cases}$
10) $\begin{cases} U_0 = 58 \\ U_n = 1.2 * U_{(n-1)} \\ n \geq 1 \end{cases}$
11) How many different sequences can you make, now that you know about shifted geometric sequences if you are only given 2 numbers in the ordered list of numbers. For example, how many different sequences can you make given:

10,8,…

12) A new car costs $14,000. It has an annual depreciation of 13%. What is the car worth in 5 years?
13) You deposit $1,000 into an account that earns 6% APR. You make no other deposits or withdraws. How much is the car worth in 8 years?
14) You take out a loan of $11,000. The APR on this loan is 8% compounded monthly. You will make payments of $200 a month. How long does it take for you to pay off the loan? What is the last month's payment? What is the total amount that you paid?

I can write an explicit (direct) formula for an arithmetic or geometric recursive…

15) What is the direct formula for the arithmetic recursive:

$$\begin{cases} U_1 = 28 \\ U_n = U_{(n-1)} - 16 \\ n \geq 1 \end{cases}$$

Use your direct formula to find the 12th term: _____

16) What is the direct formula for the geometric recursive:

$$\begin{cases} U_0 = 5 \\ U_n = 4 * U_{(n-1)} \\ n \geq 1 \end{cases}$$

Use your direct formula to find the 12th term:_____

17) Joe bought a car for $13,000. The depreciation rate is 12%. Write a recursive formula for this and a direct formula for this scenario. Use your direct formula to find the value of the car after 12 years._____
18) Given the series 5+9+13+17+…33 What is the sum of this given series?
19) Given the series 4+16+64+…4096 What is the sum of this given series?
20) Sketch the graph of an arithmetic sequence: For example:

$$\begin{cases} U_1 = 4 \\ U_n = U_{(n-1)} + 2 \\ n \geq 2 \end{cases}$$

21) Sketch the graph of a geometric sequence: For example

$$\begin{cases} U_0 = 4 \\ U_n = 2 * U_{(n-1)} \\ n \geq 1 \end{cases}$$