

Name \_\_\_\_\_

Date \_\_\_\_\_

Advanced Algebra

Unit 1: Sequence and Series Assignment #1

**Foundational:**

- 1) List the first 5 terms of this sequence in order (  $U_1$  is the first term of the sequence)

$$\begin{cases} U_1 = 15 \\ U_n = U_{(n-1)} - 1 \\ n \geq 2 \end{cases}$$

- 2) List the first 5 terms of this sequence in order (  $U_1$  is the first term of the sequence)

$$\begin{cases} U_0 = 9 \\ U_n = U_{(n-1)} + 7 \\ n \geq 1 \end{cases}$$

**Moderate:**

**Find the recursive formula for the following Arithmetic Sequences**

- 1)  $U_3 = 13$  and  $U_7 = 25$   
2)  $U_4 = 18$  and  $U_6 = 28$   
3)  $U_5 = -16$  and  $U_7 = -20$   
4) The 3<sup>rd</sup> term of an arithmetic sequence is 7 and the 7<sup>th</sup> term is 12. Using  $U_1$  as the starting value , write the correct recursive formula for this sequence.

5)

			$U_4$		$U_6$
			28		44

6)

		$U_3$		$U_5$	
		-7		-13	

- 7)  $U_3 = 10$  and the common difference is 4 ( Your notation should look like below)

$$\begin{cases} U_1 = \\ U_n = \\ n \geq \end{cases}$$

- 8)  $U_5 = -3$  and the common difference is -8

9)  $U_4 = -2$  and the common difference is 6

10) Theo's bank account started with \$600. After 8 weeks, the account has \$504 remaining in it. He withdraws (takes out) the same amount each week. Using  $U_0$  as your starting value, write a recursive formula describing the amount of money in his bank account.

**Find the recursive formula and find the given term. IT could be arithmetic or Geometric**

11) 2,6,10,14,... Find the 15<sup>th</sup> term

12) 10,5,0,-5,... Find the 12<sup>th</sup> term

13) .4,.04,.004,.0004 Find the 10<sup>th</sup> term