CCSS Algebra 2 – Assignment Name _____
Unit 1 – Block 4

1. Expand this series and find the sum: $\sum_{n=3}^{6}(10-n)$

2.. The population of a town is increasing by 10% every year. There are 8000 residents of this town currently.

a. Use this information to project this town's population in 5 years. Show your methods.

b. Write a function rule that models this situation.

c. Write a recursive definition for the revenue from the performances. Then find a general formula for the t_n in terms of n, and use the general formula to find the 10^{th} term.

d. How does the general formula compare with the function rule you found in part b?

3. A submarine is using fuel as it travels underwater. The amount of fuel in its storage tank is 80% of the prior day's amount. If the submarine has 4000 gallons of fuel, then how much fuel will be in the fuel tank after one week? Justify your answer.

4. Derive a general formula for the sum of any geometric series of n terms with first term t_1 and common ratio r.

5. Consider the following geometric series:

$$3 + 9 + 27 + 81 + 243 + 729$$

a. Using the general formula you derived in the previous problem, find the sum for this geometric series.

b. Express this geometric series in sigma notation from n = 1 to n = 6.

c. Verify the sum of the series using sigma notation.