Name_____

Precalculus Unit 12: 12.2-12.3 Homework
Arithmetic and Geometric Sequences and Series

For each of the following sequences, identify as arithmetic, geometric, or neither and write a non-recursive formula for the nth term.

1. 4, 10, 16, 22, 28, …

2. 0, 3, 8, 15, 24, …

3. $\frac{2}{3}, \frac{3}{4}, \frac{4}{5}, \frac{5}{6}, \ldots$

4. $\frac{1}{3}, \frac{-2}{9}, \frac{4}{27}, \frac{-8}{81}, \ldots$

5. $1, \frac{1}{2}, \frac{1}{6}, \frac{1}{24}, \frac{1}{120}, \ldots$

Write the following series in sigma notation and then find the sum. **Show work!**

6. $3 - 9 + 27 - 81 + 243 - 729$

7. $8 + 19 + 30 + 41 + 52 + 63 + 74 + 85 + 96$

Use the given conditions to write a non-recursive formula for the arithmetic sequence.

8. $a_1 = 12,\ d = -2$

9. $a_5 = 190,\ a_{10} = 115$

Evaluate the following arithmetic series. **Show work!**

10. Find the sum of the first 50 positive even integers.

11. $\sum_{i=1}^{40}(-2i + 32)$

Write a formula for the following geometric sequences.

12. $7,\ 21,\ 63,\ 189, \ldots$

13. $2,\ \frac{-1}{2},\ \frac{1}{8},\ \frac{-1}{32}, \ldots$

Evaluate the following geometric series. **Show work!**

14. $7 + 14 + 28 + \cdots + 896$

15. $-6 + 5 + \frac{-25}{6} + \frac{125}{36} + \cdots$ (This is an infinite sum.)