Name: _____ Period: _____

Unit 2 Review: Sequences and Series

1. Find a_2, a_3, and a_4 for the recursive sequence.
   $a_n = a_{n-1} + 3$ where $a_1 = 5$

2. Find the sum. *Make sure you know the PROCESS, not just the shortcut!*
   $\sum_{k=1}^{4} k2^k$

3. Find the 60th term of the arithmetic sequence.
   26.2, 29.9, 33.6, 37.3, …

4. Find the number of terms in the sequence.
   3, 8, 13, … 73

5. A partial sum of an arithmetic sequence is given. Find the sum.
   3+7+11+…+39

6. Determine whether the sequence is geometric, arithmetic or neither

   a) 6, 24, 96, 384,…

   b) 1.0, 1.3, 1.69, 2.197

   c) 5, 11, 13, 23, …

7. Find *nth* term and the 10th term of the geometric sequence.
   4, 12, 36, 108 …

8. Find the sum.
   $\sum_{k=2}^{6} 2^{k-2}$

9. A partial sum of an arithmetic sequence is given. Find the sum.

   -30 – 29.7 – 29.4 – … – 0.3

10. How many terms of the series 7 + 12 + 17 + 22 + … must be added for the sum to be 3402?

11. Find the sum of the infinite geometric series, if it exists, or say diverges.

a) $\frac{2}{7}-\frac{8}{49}+\frac{32}{343}-\ldots$

b) $2+6+18+\ldots$

c) $-a-\frac{a}{3}-\frac{a}{9}-\frac{a}{27}\ldots$

12. Find the first term in a geometric sequence whose common ratio is 3 and whose 8th term is 8748.

13. How many terms are there in the sequence $1,\frac{1}{2},\frac{1}{4},\frac{1}{8},\ldots\frac{1}{1024}$?

14. Find the sum of the first 8 terms of the sequence $1+4+16+\ldots$

15. For what real value of c will $6,2,c$ be consecutive terms in a geometric sequence?

16. Evaluate $\binom{15}{3}$

17. Expand $(2x-3)^5$

18. Find the 4th term in the expansion $(4x-2y)^8$.

19. Write the term that contains x^6 in the expansion $(x+2y)^{10}$.

20. In an arithmetic sequence $a_2=4x+y$ and $a_3=6x+5y$. Find a_{11}.