Algebra 2: Assignment #: _____ Name_____

# Final Review: Chapter 11

Date_____ Period____



**Evaluate each infinite geometric series described.**

1) $\sum_{i=1}^{\infty} -\frac{81}{125}\left(-\frac{5}{3}\right)^{i-1}$

2) $\sum_{m=1}^{\infty} -2 \cdot (-4)^{m-1}$

3) $\sum_{n=1}^{\infty} -3 \cdot \left(-\frac{1}{2}\right)^{n-1}$

4) $\sum_{i=1}^{\infty} 3.2 \cdot 0.2^{i-1}$

**For each sequence, state if it is arithmetic, geometric, or neither.**

5) 1, 9, 25, 49, 81, ...

6) $-22, -10, -4, -1, \frac{1}{2}, ...$

7) 1, 2, 6, 24, 120, ...

8) 21, 31, 41, 51, 61, ...

**Find the 8th term and the explicit formula.**

9) −2, 4, −8, 16, ...

10) 4, −20, 100, −500, ...

**Given a term in a geometric sequence and the common ratio find the explicit formula.**

11) $a_1 = 3,\ r = 3$

12) $a_4 = 8,\ r = 2$

**Given two terms in a geometric sequence find the explicit formula.**

13) $a_4 = -81$ and $a_1 = -3$

14) $a_1 = -1$ and $a_5 = -16$

**Evaluate each geometric series described.**

15) $-1 - 3 - 9 - 27...,\ n = 8$

16) $-1 - 2 - 4 - 8...,\ n = 9$

**Evaluate each arithmetic series described.**

17) $15 + 23 + 31 + 39...,\ n = 8$

18) $11 + 15 + 19 + 23...,\ n = 8$

**Determine the number of terms *n* in each arithmetic series.**

19) $19 + 23 + 27 + 31..., \ S_n = 1045$

20) $15 + 24 + 33 + 42..., \ S_n = 1320$

**Determine the number of terms *n* in each geometric series.**

21) $-3 + 15 - 75 + 375..., \ S_n = -1563$

22) $-3 + 18 - 108 + 648..., \ S_n = -119973$

**Write a rule for the nth term of the sequence. Then find the 52nd term.**

23) 30, 26, 22, 18, ...

24) 6, 4, 2, 0, ...

**Write a rule for the nth term of the sequence given a term and the common difference.**

25) $a_{26} = 493, \ d = 20$

26) $a_{36} = -332, \ d = -10$

**Write a rule for the nth term of the sequence given two terms.**

27) $a_{15} = -101$ and $a_{36} = -206$

28) $a_{15} = -47$ and $a_{34} = -85$

**Find the first four terms in each sequence.**

29) $a_n = (-10)^n + 2$

30) $a_n = 21 + 6n$

**Write the rule for the sequence.**

31) 1, 21, 41, 61, 81, ...

32) 1.8, 3.6, 5.4, 7.2, 9, ...

**Rewrite each series using sigma notation.**

33) $2 + 4 + 8 + 16 + 32 + 64$

34) $3 + 6 + 9 + 12 + 15$

**Evaluate each series.**

35) $\sum_{a=1}^{5} (100 - a^2)$

36) $\sum_{k=1}^{6} 5k$