

Name: _____

Math Analysis Chapter 8 Review

For questions 1-7, Is the sequence arithmetic, geometric, or neither? If arithmetic **or** geometric, **find** a_n . **Then** find the 50th term.

1) 2, -4, 8, -16, 32, ...

2) 1, -3, 9, -27, ...

3) -3, -7, -11, -15, ...

4) -3, -6, -9, -12, ...

5) $\frac{1}{2}, \frac{1}{12}, \frac{1}{72}, \frac{1}{432}, \dots$

6) $3, \frac{9}{4}, \frac{27}{16}, \frac{81}{64}, \frac{343}{256}, \dots$

7) 1, 1, 2, 3, 5, 8, 13, ...

8. Evaluate: $\sum_{x=3}^6 (x+5)^2 - \sum_{x=3}^6 (x^2 - 3x)$

9. Find the sum: $\sum_{n=1}^{200} (2 - 6n)$

10. Given the following arithmetic sequence: 17, 13, 9, 5, ... find a_{51}

11. Given an arithmetic sequence with $a_2 = 5$ and $a_4 = 13$ find a_{46}

12. Find the sum of the first 14 terms of the arithmetic sequence whose nth term is $a_n = 3n + 5$.

13. Find the sum of the arithmetic series: $-10 + -4 + 2 + 8 \dots + 86$

14. Find the sum of the first 60 terms of the arithmetic series: $-9 + -3 + 3 + \dots$

15. Given the geometric sequence: $400, 100, 25, \dots$ find a_{12}

Find the sum.

16. $\sum_{n=0}^{10} 9\left(\frac{1}{3}\right)^n$

17. $8 + 2 + \frac{1}{2} + \frac{1}{8} + \dots$

18. $3 + \frac{9}{2} + \frac{27}{4} + \frac{81}{8} + \dots a_{11}$

19. $\sum_{n=0}^{\infty} 10\left(-\frac{1}{4}\right)^n$

20. $\sum_{n=1}^{\infty} \frac{1}{3}(2)^{n-1}$

21. $\sum_{n=1}^{\infty} \frac{1}{3}\left(\frac{3}{4}\right)^n$

22. Determine the seating capacity of an auditorium with 30 rows of seats if there are 35 seats in the first row, 28 seats in the second row, 21 seats in the third row, and so on.

23. A class consists of 20 men and 11 women. In how many ways can a debate team be chosen with 5 men and 5 women?

24. How many different ways can a manager arrange a batting order of 9 players if there are 15 players on the team?