

Math Analysis Honors – Unit 8

Sequences and Series Review WS

Show all formulas used and work.

1. If  $a_1 = 5$  and  $d = 10$ , find the ninth term of the arithmetic sequence.
2. Given the arithmetic sequence  $-4, 1, 6, \dots$  and  $a_n = 61$ , find  $n$ .
3. Find the missing terms of the arithmetic sequence  $6, \_, \_, \_, 72$ .
4. If  $a_1 = 10$ ,  $d = -2$ , and  $n = 12$ , find the sum of the arithmetic series.
5. If  $d = 3$ ,  $n = 7$ , and  $a_n = 16$ , find the sum of the arithmetic series.
6. If  $a_1 = 3$ ,  $a_n = 30$ , and  $S_n = 214.5$ , find the first three terms of the arithmetic series.
7. A clock strikes the hours from 1 to 12. Find the number of strokes it makes in 24 hours.
8. If  $a_1 = 3$  and  $r = 2$ , find the seventh term of the geometric sequence.
9. Find the missing geometric means for the sequence  $3, \_, \_, \_, -96$ .
10. If  $a_1 = 32$ ,  $r = -0.5$  and  $n = 5$ , find the sum of the geometric series.
11. If  $a_2 = 2.2$ ,  $a_5 = 17.6$ , and  $n = 6$ , find the sum of the geometric series.
12. If  $n = 5$ ,  $r = 3$ , and  $S_n = 242$ , find the first term of the geometric series.
13. Find the sum of the infinite geometric series  $7, 3, \frac{9}{7}, \frac{27}{49}, \dots$
14. Find a recursive formula of the sequence  $1, 3, 7, 15, \dots$
15. Find a formula for the  $n$ th term of the sequence  $200, 20, 2, 0.2, \dots$
16. Write  $\sum_{t=1}^3 (4 + 3t)$  in expanded form.
17. Find the sum of  $\sum_{b=1}^6 3^{b-3}$ .
18. Use sigma notation to express  $3 + 5 + 7 + \dots + 21$ .
19. A certain ball dropped from a distance of 20 feet rebounds  $\frac{3}{4}$  of the height from which it fell. Find the distance it travels before coming to rest.