

Sequences and Series Topics

1. Given a rule, find the first 4 terms of a sequence
2. Given part of a sequence, find the next term(s)
3. Finding "n" (number of a term) in an arithmetic sequence
4. Finding "d" (common difference) given two random terms of a sequence
5. Finding "r" (common ratio) given two terms of a sequence
6. Write the recursive rule for both arithmetic sequences and geometric sequences
7. Arithmetic means and Geometric Means
8. Partial sums (S_n) for Arithmetic Series
9. Partial sums (S_n) for Geometric Series
10. Writing Arithmetic Series in Sigma Notation
11. Writing Geometric Series in Sigma Notation
12. Finding Arithmetic Sums given sigma notation
13. Finding Geometric Sums given sigma notation
14. Sums of an Arithmetic Series starting at with a random term ($n \neq 1$)
15. Finding the value of an Infinite sum given in sigma notation (if possible)
16. Convergent/Divergent
17. Finding a specific term given a sum of the series, a term and r
18. Finding a specific term given the sequence and a sum
19. Series Word problem (stacking, rows, etc.)

Sample Problems

1. Given $a_n = 3n - 5$, find the first 4 terms.
2. Find the next three terms of 2, 6, 18, ____, ____, ____
3. Given $a_n = 39$, $a_1 = 225$, and $d = -6$, find n.
4. If $a_{17} = 111$ and $a_{28} = 199$, find d.
5. If $a_5 = 48$ and $a_8 = 384$, find r.
6. Write the recursive rule for: -1, 2, 5, 8, 11, ...
7. Write the recursive rule for: 3, 6, 12, 24, ...
8. Find the 10th partial sum of: 1+2+4+8+...
9. $\sum_{n=1}^{22} 5n - 11 =$
10. Find the 12th partial sum of: 2+5+8+11+...

11. $\sum_{n=1}^8 5(3)^{n-1} =$

12. $\sum_{n=1}^{\infty} 18 \left(\frac{1}{2}\right)^{n-1} =$

For numbers 13-14, write the series using sigma notation.

13. $5+7+9+11+\dots+33$

14. $2+6+18+\dots+1458$

15. $\sum_{n=11}^{55} 3n - 8$

16. Find a_n given $a_1=2$, $S_n=682$, and $r=4$

17. $\sum_{n=1}^{\infty} 3 - 5n$

19. A certain auditorium has 30 seats in the front row. Every row after increases the number of seats by 4. How many seats are there if there are 25 rows?