Pre-AP Precal

Series and Sequences

Name _____ Date _____

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

1. 15, 17, 20, 22, 24

2. $-6,\ 12,\ -24,\ 48$

3. $-17,\ -21,\ -25,\ -29$

4. What is the 7th term of the geometric progression $-625, 125, \ldots$?

5. The ninth term of an arithmetic progression is 25 and the common diffference is 1.5 What is the first term?

6. If p, 5, and 12 are consecutive terms of a geometric sequence, find the value of p.

Express using sigma notation.

7. $-12 - 7 - 2 + 3 + 8 + 13$

8. Write the first 4 terms of the geometric sequence whose 5th term is 6 and whose common ratio is $-\frac{3}{2}$.

9. If $a_{13} = 7$ and $a_{17} = 23$ in an arithmetic sequence, find the sum of the first 20 terms.

State the next 2 terms of the sequence and give a formula for the nth term.

10. 72, 70, 68, 66, 64

11. In an arithmetic sequence, $a_5 = 6x + y$ and $a_8 = 9x - 5y$. Find a_{22} and the sum of the first 22 terms.

12. Which term is 153 if an arithmetic sequence begins $-9, -3, 3, 9, \ldots$?

13. Find the common ratio and the next 2 terms for the geometric sequence $6, 3, \frac{3}{2}, \ldots$.

14. How many terms of the arithmetic series $18 + 12 + 6 + \cdots$ must be added for the sum to be -2070?

15. Find the sum of the geometric series $\frac{1}{64} + \frac{1}{16} + \frac{1}{4} + \cdots + 16$.

16. Find the sum of the series $8 + 2 - 4 - 10 \cdots - 106$.

State the next 2 terms of the sequence and give a formula for the nth term.

17. 3, 9, 27, 81, 243

18. Find the sum of the first 7 terms of the geometric series $162 + (-54) + 18 + \cdots$.

19. Find the sum of the first 16 terms of the sequence $-18, -15, -12, \ldots$

20. In an arithmetic sequence, $a_2 = 5k + 3j$ and $a_3 = 4k + 4j$. Find a_8.

Simplify.

21. $\sum_{c=1}^{5} (17 - 3c)$

Find the sum, if it exists.

22. $\frac{1}{4} + \frac{1}{2} + 1 + 2 + \cdots$

23. $9 + 3 + 1 + \cdots$

24. $a + \left(-\frac{a}{10}\right) + \frac{a}{100} + \left(-\frac{a}{1000}\right) + \cdots$

25. Which term is $\frac{1}{625}$ in the geometric progression $3125, 625, 125, \ldots$?

26. Find the 38th term of the arithmetic sequence $103, 99, 95, \ldots$

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Answer List

1.	neither	2.	geometric $r = -2$	3.	arithmetic $d = -4$
4.	$-\frac{1}{25}$	5.	13	6.	$\frac{25}{12}$
7.	$\sum_{0}^{5}(5n-12)$	8.	$\frac{32}{27}$, $-\frac{16}{9}$, $\frac{8}{3}$, -4	9.	-60
10.	62, 60; $a_n = 74 - 2n$	11.	$23x - 33y$, $275x - 264y$	12.	28
13.	$r = \frac{1}{2}$; $\frac{3}{4}$, $\frac{3}{8}$	14.	30	15.	$21\frac{21}{64}$
16.	-980	17.	729, 2187; $a_n = 3^n$	18.	$121\frac{5}{9}$
19.	72	20.	$-k + 9j$	21.	40
22.	no sum	23.	13.5	24.	$\frac{10a}{11}$
25.	10th	26.	-45		

Catalog List

1.	TRI LE 17	2.	TRI LE 10	3.	TRI LE 24
4.	TRI LH 22	5.	TRI LF 40	6.	TRI LH 80
7.	TRI LD 21	8.	TRI LH 42	9.	TRI LG 60
10.	TRI LB 34	11.	TRI LG 61	12.	TRI LF 62
13.	TRI LH 6	14.	TRI LG 46	15.	TRI LI 4
16.	TRI LG 4	17.	TRI LB 77	18.	TRI LI 31
19.	TRI LG 30	20.	TRI LF 19	21.	TRI LC 28
22.	TRI LK 25	23.	TRI LK 2	24.	TRI LK 109
25.	TRI LH 67	26.	TRI LF 22		