Pre-AP Precal

Series and Sequences

Name _____ Date _____

Find the sum, if it exists.

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

2. In a geometric progression, the 5th term is $\frac{9}{4}$ and the 11th term is 144. Find the first 3 terms.

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

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

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

Express using sigma notation.

6. $-12 - 7 - 2 + 3 + 8 + 13$

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

8. 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.

9. 72, 70, 68, 66, 64

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

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

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

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

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

15. 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.

16. 3, 9, 27, 81, 243

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

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

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

Simplify.

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

Find the sum, if it exists.

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

22. $9 + 3 + 1 + \cdots$

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

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

Pre-AP Precal Series and Sequences Baker 2/26/2015

Answer List

1. $\frac{10a}{11}$
2. $\frac{9}{64}$, $\pm\frac{9}{32}$, $\frac{9}{16}$
3. $-\frac{1}{25}$
4. 13
5. $\frac{25}{12}$
6. $\sum_{0}^{5}(5n-12)$
7. $\frac{32}{27}$, $-\frac{16}{9}$, $\frac{8}{3}$, -4
8. -60
9. 62, 60; $a_n = 74 - 2n$
10. $23x - 33y$, $275x - 264y$
11. 28
12. $r = \frac{1}{2}$; $\frac{3}{4}$, $\frac{3}{8}$
13. 30
14. $21\frac{21}{64}$
15. -980
16. 729, 2187; $a_n = 3^n$
17. $121\frac{5}{9}$
18. 72
19. $-k + 9j$
20. 40
21. no sum
22. 13.5
23. -45
24. 10th

Catalog List

1. TRI LK 109
2. TRI LH 58
3. TRI LH 22
4. TRI LF 40
5. TRI LH 80
6. TRI LD 21
7. TRI LH 42
8. TRI LG 60
9. TRI LB 34
10. TRI LG 61
11. TRI LF 62
12. TRI LH 6
13. TRI LG 46
14. TRI LI 4
15. TRI LG 4
16. TRI LB 77
17. TRI LI 31
18. TRI LG 30
19. TRI LF 19
20. TRI LC 28
21. TRI LK 25
22. TRI LK 2
23. TRI LF 22
24. TRI LH 67