10.2

Pre-AP Precalculus

Arithmetic Sequences and Series

Name answers

Date _____

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

1. 6, 12, 18, 24, 30, 36, 42

$6n$

2. $-8, -16, -24, -32, -40, -48, -56$

$-8n$

3. 2, 7, 12, 17, 22, 27, 32

$5n-3$

4. If the first term of an arithmetic sequence is -7 and the common difference is 3, find the next 5 terms.

$-4, -1, 2, 5, 8$

5. If the first term is 9 and the common difference is -4, state the next four terms and the 100th term of the arithmetic progression.

$5, 1, -3, -7, \ldots, -387$

6. In an arithmetic sequence, the first term is 6 and the common difference is $1\frac{2}{3}$. What is the 8th term? the nth term?

$a_n = \frac{5}{3}n + \frac{13}{3}$

$a_8 = \frac{53}{3}$

7. In an arithmetic sequence, $a_1 = 3x - 2y$ and $a_2 = 5x$. Find a_{12}.

$25x + 20y$

8. Find the 43rd term of the arithmetic sequence $-124, -122, -120, \ldots$

-40

9. The 8th term of an arithmetic progression is 6 and the common difference is $\frac{3}{4}$. What is the first term?

$\frac{3}{4}$

10. Which term is -54 if an arithmetic sequence begins $6, 2, -2, -6, \ldots$?

16

11. Find the sum of the series $6+9+12+15+\cdots+60$.

627

12. Find the sum of the series $5-2-9-16\cdots-156$.

-1812

13. In an arithmetic series, find the sum of the first 48 terms if the first term is -6 and the common difference is 2.

1968

14. In an arithmetic series, find the sum of the first 72 terms if the first term is 5 and the common difference is $\frac{1}{3}$.

1212

15. Find the sum of the first 8 terms of the sequence $3, -2, -7, \ldots$

-116

16. Find the sum of the terms of the arithmetic sequence $22, 25, 28, \ldots, 73$.

855

17. How many terms of the arithmetic series $25 + 19 + 13 + \cdots$ are required to give a sum of -20?

$n = 10$

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

$n = 30$

19. If $a_7 = 6$ and $a_{13} = 24$ in an arithmetic sequence, find the sum of the first 15 terms.

135

20. In an arithmetic sequence, $a_4 = 8k - 6j$ and $a_8 = -4k + 2j$. Find a_{21} and the sum of the first 21 terms.

$a_{21} = -43k + 28j$

$S_{21} = -273k + 168j$