

Pre-AP Precalculus  
Arithmetic Sequences and Series

Name \_\_\_\_\_

Date \_\_\_\_\_

State the next 2 terms of the sequence and give a formula for the  $n$ th 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.

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

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  $n$ th term?

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

$$17\frac{2}{3} \\ \text{or } 53\frac{1}{3}$$

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, ...

$$-40$$

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

$$3\frac{1}{4}$$

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

$$16$$

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

$$627$$

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

$$-1812$$

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  $3, -2, -7, \dots$

-116

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

855

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

10

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

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.

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

$-273k + 168j$