



# 1-4 Additional Practice

## Arithmetic Sequences and Series

Are the following sequences arithmetic? If so, what is the common difference?  
What is the next term in the sequence?

1.  $0, -3, -6, -9, \dots$

2.  $2, 3, 5, 8, \dots$

3.  $127, 140, 153, 166, \dots$

Translate between the recursive and explicit definitions for each sequence.

4.  $a_n \begin{cases} 6, n = 1 \\ a_{n-1} + 3, n > 1 \end{cases}$

5.  $a_n = 12 - 2(n - 1)$

6.  $a_n = 5 - 4(n - 1)$

7. Each year, a volunteer organization expects to add 5 more people for whom the group provides home maintenance services. This year, the organization provides the service for 32 people.
- Write an explicit formula for the number of people the organization expects to serve each year.
  - How many people would the organization expect to serve during the year, 20 years from now?

Find the sum of an arithmetic series with the given number of terms,  $a_1$  and  $a_n$ .

8. 9 terms; 2, 5, 8, 11, ...

9. 12 terms;  $-2, 2, 6, 10, \dots$

10. 20 terms; 5, 10, 15, 20, ...

Find the sum of each of the following series.

11.  $\sum_{n=2}^5 (5n + 3)$

12.  $\sum_{n=1}^4 (2n + 0.5)$

13.  $\sum_{n=1}^4 (-n - 3)$

14. A marching band formation consists of 6 rows. The first row has 9 musicians, the second has 11, the third has 13 and so on. How many musicians are in the last row and how many musicians are there in all?
15. A student identifies the series 10, 15, 20, 25, 30 as an infinite arithmetic series. Is he correct? Explain.