

# Reteaching Worksheet

## Arithmetic Sequences

A set of numbers in a specific order is called a **sequence**. Each number in a sequence is called a **term**. The first term is symbolized by  $a_1$  and the second term by  $a_2$ , so that, in general,  $a_n$  represents the  $n$ th term. An **arithmetic sequence** is a sequence in which each term, after the first, is found by adding a constant, called the *common difference*, to the previous term.

### ***n*th Term of an Arithmetic Sequence**

The  $n$ th term,  $a_n$ , of an arithmetic sequence with first term  $a_1$  and common difference  $d$  is given by the formula  $a_n = a_1 + (n - 1)d$ .

**Example:** Find the tenth term,  $a_{10}$ , of the arithmetic sequence with  $a_1 = 7$  and  $d = 3$ .

$$\begin{aligned}a_n &= a_1 + (n - 1)d \\a_{10} &= 7 + (10 - 1)3 \\&= 7 + 27 \\&= 34\end{aligned}$$

The tenth term is 34.

**Find the indicated term for each arithmetic sequence.**

1.  $a_{14}$  for  $a_1 = 4$ ,  $d = 6$       2.  $a_{12}$  for  $a_1 = -4$ ,  $d = -2$       3.  $a_{15}$  for  $a_1 = 5$ ,  $d = -3$

4.  $a_{10}$  for 0, -3, -6, -9, ...      5.  $a_{12}$  for 4, 10, 16, 22, ...      6.  $a_{21}$  for 10, 6, 2, -2, ...

**Find the missing terms in each arithmetic sequence.**

7. 5, \_\_\_\_, \_\_\_\_, \_\_\_\_, -3      8. -7, \_\_\_\_, \_\_\_\_, \_\_\_\_, 1      9. \_\_\_\_, \_\_\_\_, 42, \_\_\_\_, 60

10. 18, \_\_\_\_, \_\_\_\_, \_\_\_\_, -2      11. \_\_\_\_, \_\_\_\_, 3, \_\_\_\_, -11      12. \_\_\_\_, 10, \_\_\_\_, \_\_\_\_, 4, \_\_\_\_,