LESSON 11.5 CONTINUED

NAME _____ DATE _____

Reteaching with Practice

For use with pages 681–687

Exercises for Example 2

Write a recursive rule for the arithmetic sequence.

5. $a_1 = 2$, $d = 4$

6. $a_1 = 0$, $d = -2$

7. $a_1 = -3$, $d = 1$

8. $a_1 = 12$, $d = -4$

EXAMPLE 3 Writing a Recursive Rule for a Geometric Sequence

Write a recursive rule for a geometric sequence with $a_1 = 2$ and $r = -3$.

SOLUTION

Use the fact that you can obtain a_n in a geometric sequence by multiplying the previous term by the constant ratio, r.

$$a_n = r \cdot a_{n-1}$$
$$= -3a_{n-1}$$

A recursive rule for the sequence is $a_1 = 2$, $a_n = -3a_{n-1}$.

Exercises for Example 3

Write a recursive rule for the geometric sequence.

9. $a_1 = 3$, $r = 8$

10. $a_1 = 10$, $r = \frac{1}{2}$

11. $a_1 = -2$, $r = 0.3$

12. $a_1 = -1$, $r = -2$

EXAMPLE 4 Writing a Recursive Rule

Write a recursive rule for the sequence 2, 6, 10, 14, 18, ...

SOLUTION

Notice that the common difference of the terms is 4. This tells you the sequence is arithmetic. Therefore, each term is obtained by adding 4 to the previous term.

A recursive rule is given by:

$a_1 = 2, a_n = a_{n-1} + 4.$

Exercises for Example 4

Write a recursive rule for the sequence.

13. 1, 2, 4, 8, 16, . . .

14. 11, 23, 35, 47, 59, . . .

15. −12, −8, −4, 0, 4, . . .

16. 1, −3, 9, −27, . . .