

### Warm-Up 3.2.1

Sophia has a greenhouse. She's trying to grow a demanding species of orchid that requires water every 3 days—no more, no less. The first day Sophia waters the orchids is Sunday, May 1. Use this information to answer the questions.

1. What is the third date on which Sophia will need to water the orchids?
  
  
  
  
  
  
  
  
  
  
2. What is the fifth date on which Sophia will need to water the orchids?
  
  
  
  
  
  
  
  
  
  
3. What is the seventh date on which Sophia will need to water the orchids?

**Example 1**

Complete the sequence by using recursion. What are the fifth, sixth, and tenth terms of the sequence?

$$A = \{5, 9, 13, 17, a_5, a_6, 29, 33, 37, a_{10}\}$$

**Example 2**

Find the missing terms in the sequence using recursion.

$$A = \{8, 13, 18, 23, a_5, a_6, a_7\}$$

**Example 3**

Find the missing terms in the sequence using recursion.

$$B = \{6, 18, 54, 162, b_5, b_6, 4374, b_8\}$$

**Example 4**

Find the ninth term in the sequence given by  $a_n = 3n + 1$ .

**Example 5**

Find the seventh term in the sequence given by  $a_n = 3 \cdot 2^{n-1}$ .

### Practice 3.2.1: Sequences As Functions

Use what you know about sequences to complete each problem.

1. What is the fourth term in the sequence given by  $a_n = 10n - 12$ ?
2. What is the fourth term in the sequence given by  $a_n = 5n + 3$ ?
3. Graph the first 5 terms of the sequence given by  $a_n = 5n - 7$ .
4. Graph the first 5 terms of the sequence given by  $a_n = 2^{n-1} - 2$ .
5. What is the third term in the sequence given by  $a_n = 3(5)^{n-1}$ ?
6. What is the fourth term in the sequence given by  $a_n = 13(2)^{n-1}$ ?
7. Complete and graph the sequence: 2, 6, 18, 54,  $a_5$ , 486.
8. Complete and graph the sequence: 13, 21, 29, 37,  $a_5$ ,  $a_6$ .
9. A radio show breaks for news every 30 minutes. After every fourth news report, the newscaster reads the daily sports highlights. If the radio show began at 12:01 P.M. and the first news report was read at 12:31 P.M., at what time will the daily sports highlights be read?
10. Water stations are set up periodically through a marathon route. After the first water station, the rest of the water stations are set up every 3.5 miles. If the first station is at the 5-mile mark, at what mile mark will the fifth water station be?