

Understanding Geometric Sequences

Practice and Problem Solving: A/B

Find the common ratio r for each geometric sequence and use r to find the next three terms.

1. 3, 9, 27, 81, ... $r =$ _____

2. 972, 324, 108, 36, ... $r =$ _____

Next three terms: _____

Next three terms: _____

Complete.

3. The 11th term in a geometric sequence is 48 and the common ratio is 4.

The 12th term is _____ and the 10th term is _____.

4. 7 and 105 are successive terms in a geometric sequence. The

term following 105 is _____.

Find the common difference d of the arithmetic sequence and write the next three terms.

5. 6, 11, 16, 21, ... $d =$ _____

6. 7, 4, 1, -2, ... $d =$ _____

Next three terms: _____

Next three terms: _____

7. Tom's bank balances at the end of months 1, 2, and 3 are \$1600,

\$1664, and \$1730.56. What will Tom's balance be at the end of month 5? _____

LESSON 15-1

Practice and Problem Solving: A/B

1. $r = 3$; 243, 729, 2187

2. $r = \frac{1}{3}$; 12, 4, $\frac{4}{3}$

3. 192; 12

4. 1575

5. $d = 5$; 26, 31, 36

6. $d = -3$; -5, -8, -11

7. \$1871.77

Constructing Geometric Sequences

Practice and Problem Solving: A/B

Complete.

1. Below are the first five terms of a geometric series. Fill in the bottom row by writing each term as the product of the first term and a power of the common ratio.

<i>N</i>	1	2	3	4	5
<i>f(n)</i>	3	12	48	192	768
<i>f(n)</i>					

The general rule is $f(n) = \underline{\hspace{2cm}}$.

Each rule represents a geometric sequence. If the given rule is recursive, write it as an explicit rule. If the rule is explicit, write it as a recursive rule. Assume that $f(1)$ is the first term of the sequence.

2. $f(n) = 11(2)^{n-1}$

3. $f(1) = 2.5; f(n) = f(n-1) \cdot 3.5$ for $n \geq 2$

Write an explicit rule for each geometric sequence based on the given terms from the sequence. Assume that the common ratio r is positive.

4. $a_1 = 90$ and $a_2 = 360$

5. $a_1 = 16$ and $a_3 = 4$

A bank account earns a constant rate of interest each month. The account was opened on March 1 with \$18,000 in it. On April 1, the balance in the account was \$18,045. Use this information for 6-7.

6. Write an explicit rule and a recursive rule that can be used to find $A(n)$, the balance after n months.

7. Find the balance after 5 months. _____

LESSON 15-2

Practice and Problem Solving: A/B

1. $3(4)^0, 3(4)^1, 3(4)^2, 3(4)^3, 3(4)^4;$

$$f(n) = 3(4)^{n-1}$$

2. $f(1) = 11; f(n) = f(n - 1) \cdot 2$ for $n \geq 2$.

3. $f(n) = 2.5(3.5)^{n-1}$

4. $r = 4; f(n) = 90(4)^{n-1}$

5. $r = \frac{1}{2}; f(n) = 16(0.5)^{n-1}$

6. $r = 1.0025; f(n) = 18000(1.0025)^{n-1}$

7. $f(5) = \$18,180.68$