

More Practice: Geometric Sequences

KEY

What are the next 3 terms in the sequence and find the common ratio for the sequence:

1.  $6, 12, 24, \underline{48}, \underline{96}, \underline{192}$

Common ratio = 2

2.  $6, 1.8, 0.54, \underline{.162}, \underline{.0486}, \underline{.01458}$

Common ratio = 0.3

3.  $5, -10, 20, \underline{-40}, \underline{80}, \underline{-160}$

Common ratio = -2

Write the first four terms of the given sequence:

4.  $a_n = 0.5 \cdot 2^{n-1}$      0.5, 1, 2, 4

5.  $a_n = 3 \cdot (0.1)^{n-1}$      3, 0.3, 0.03, 0.003

Write the explicit formula for the given sequences:

6.  $7, 49, 343, \dots$       $a_n = 7 \cdot 7^{n-1}$

7.  $\frac{1}{63}, \frac{1}{21}, \frac{1}{7}, \dots$       $a_n = \frac{1}{63} \cdot 3^{n-1}$

8.  $0.46, 0.92, 1.84, \dots$       $a_n = 0.46 \cdot 2^{n-1}$

Find the given term of the geometric sequence.

9.  $a_1 = 3, r = 4, n = 8$       $a_8 = 3 \cdot 4^{(8-1)} = 3 \cdot 4^7 = 3 \cdot 16,384 = 49,152$

10.  $a_1 = 0.6, r = 3, n = 17$       $a_{17} = 0.6 \cdot 3^{(17-1)} = 0.6 \cdot 3^{16} = 0.6(43,046,721) = 25,828,032.6$

11.  $a_1 = 5, r = -6, n = 12$       $a_{12} = 5(-6)^{(12-1)} = 5(-6)^{11} = 5 \cdot (-362,797,056) = -1,813,985,280$

The given number is which number in the given sequence?

12.  $20971520, a_n = 5(4)^{n-1}$       $4194304 = 4^{n-1}$   
 $\frac{20971520}{5} = \frac{5(4)^{n-1}}{5}$       $n-1 = \log_4 4194304 = \frac{\log 4194304}{\log 4} = 11$

13.  $11468.8, a_n = 0.7(2)^{n-1}$      so  $n-1 = 11, n = 12$

$\frac{11468.8}{.7} = \frac{0.7(2)^{n-1}}{.7}$       $16384 = 2^{n-1}$

$n-1 = \log_2 16384 = \frac{\log 16384}{\log 2} = 14$       $n = 15$