

## Geometric Sequences Practice

Date \_\_\_\_\_

Period \_\_\_\_\_

Given the explicit formula for a geometric sequence find the first five terms and the 8th term.

1)  $a_n = \left(\frac{1}{3}\right)^{n-1}$

2)  $a_n = -4 \cdot (-3)^{n-1}$

3)  $a_n = -32 \cdot \left(\frac{1}{4}\right)^{n-1}$

Given two terms in a geometric sequence find the first five terms, the 8th term, and the recursive formula.

4)  $a_3 = 50$  and  $a_2 = 10$

5)  $a_3 = \frac{8}{9}$  and  $a_4 = \frac{16}{27}$

6)  $a_5 = -1296$  and  $a_4 = -216$

Determine if the sequence is geometric. If it is, find the common ratio, the 8th term, and the explicit formula.

7)  $-2, -10, -50, -250, \dots$

8)  $1, 2, 6, 24, \dots$

9)  $-1, -6, -36, -216, \dots$

## Answers to Geometric Sequences Practice (ID: 1)

1) First Five Terms:  $1, \frac{1}{3}, \frac{1}{9}, \frac{1}{27}, \frac{1}{81}$

$$a_8 = \frac{1}{2187}$$

3) First Five Terms:  $-32, -8, -2, -\frac{1}{2}, -\frac{1}{8}$

$$a_8 = -\frac{1}{512}$$

5) First Five Terms:  $2, \frac{4}{3}, \frac{8}{9}, \frac{16}{27}, \frac{32}{81}$

$$a_8 = \frac{256}{2187}$$

Recursive:  $a_n = a_{n-1} \cdot \frac{2}{3}$

$$a_1 = 2$$

7) Common Ratio:  $r = 5$

$$a_8 = -156250$$

Explicit:  $a_n = -2 \cdot 5^{n-1}$

8) Not geometric

2) First Five Terms:  $-4, 12, -36, 108, -324$   
 $a_8 = 8748$

4) First Five Terms:  $2, 10, 50, 250, 1250$   
 $a_8 = 156250$

Recursive:  $a_n = a_{n-1} \cdot 5$

$$a_1 = 2$$

6) First Five Terms:  $-1, -6, -36, -216, -1296$   
 $a_8 = -279936$

Recursive:  $a_n = a_{n-1} \cdot 6$

$$a_1 = -1$$

9) Common Ratio:  $r = 6$

$$a_8 = -279936$$

Explicit:  $a_n = -6^{n-1}$