

Geometric Sequences

Date _____ Period _____

Determine if the sequence is geometric. If it is, find the common ratio.

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

2) $-1, 1, 4, 8, \dots$

3) $4, 16, 36, 64, \dots$

4) $-3, -15, -75, -375, \dots$

5) $-2, -4, -8, -16, \dots$

6) $1, -5, 25, -125, \dots$

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

7) $a_n = 3^{n-1}$

8) $a_n = 2 \cdot \left(\frac{1}{4}\right)^{n-1}$

9) $a_n = -2.5 \cdot 4^{n-1}$

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

Given the recursive formula for a geometric sequence find the common ratio, the first five terms, and the explicit formula.

11) $a_n = a_{n-1} \cdot 2$
 $a_1 = 2$

12) $a_n = a_{n-1} \cdot -3$
 $a_1 = -3$

13) $a_n = a_{n-1} \cdot 3$
 $a_1 = 4$

14) $a_n = a_{n-1} \cdot 5$
 $a_1 = 2$

Given the first term and the common ratio of a geometric sequence find the first five terms and the explicit formula.

15) $a_1 = 0.8, r = -5$

16) $a_1 = 1, r = 2$

17) $a_1 = 1, r = \frac{1}{2}$

18) $a_1 = 2, r = -3$

Given the first term and the common ratio of a geometric sequence find the recursive formula and the three terms in the sequence after the last one given.

19) $a_1 = -4, r = 6$

20) $a_1 = 4, r = 6$

21) $a_1 = 2, r = 6$

22) $a_1 = -4, r = 4$

Given a term in a geometric sequence and the common ratio find the first five terms, the explicit formula, and the recursive formula.

23) $a_2 = 3, r = 2$

24) $a_5 = -\frac{16}{27}, r = \frac{2}{3}$

25) $a_4 = 25, r = -5$

26) $a_1 = 4, r = 5$

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

27) $a_4 = -12$ and $a_5 = -6$

28) $a_5 = 768$ and $a_2 = 12$

29) $a_2 = -\frac{1}{3}$ and $a_1 = -1$

30) $a_5 = 3888$ and $a_3 = 108$