Geometric Sequences

Date_____ Period____

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

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

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

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

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

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

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

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 $a_3 = 108$