Name:

Date:

Geometric Sequences

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

1) $-3, -15, -75, -375, \ldots$

2) $1, -5, 25, -125, \ldots$

3) $-2, -4, -8, -16, \ldots$

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

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

5) $a_1 = 1,\ r = 2$

6) $a_1 = 0.8,\ r = -5$

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

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

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

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

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

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1) $-3, -15, -75, -375, \ldots$

$r = 5$

2) $1, -5, 25, -125, \ldots$

$r = -5$

3) $-2, -4, -8, -16, \ldots$

$r = 2$

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

not geometric

5) $a_1 = 1,\ r = 2$

First Five Terms: $1, 2, 4, 8, 16$
Explicit: $a_n = 2^{n-1}$

6) $a_1 = 0.8,\ r = -5$

First Five Terms: $0.8, -4, 20, -100, 500$
Explicit: $a_n = 0.8.(-5)^{n-1}$

7) $a_n = a_{n-1}.-3, a_1 = -3$

Common Ratio: $r = -3$
First Five Terms: $-3, 9, -27, 81, -243$
Explicit: $a_n = -3.(-3)^{n-1}$

8) $a_n = a_{n-1}.3, a_1 = -3$

Common Ratio: $r = 3$
First Five Terms: $-3, -9, -27, -81, -243$
Explicit: $a_n = -3.3^{n-1}$

9) $a_n = a_{n-1}.5, a_1 = 2$

Common Ratio: $r = 5$
First Five Terms: $2, 10, 50, 250, 1250$
Explicit: $a_n = 2.5^{n-1}$

10) $a_n = a_{n-1}.2,\ a_1 = 2$

Common Ratio: $r = 2$
First Five Terms: $2, 4, 8, 16. 32$
Explicit: $a_n = 2.2^{n-1}$