Name: _____ Date: _____

Geometric Sequences

A sequence whose consecutive terms have a _____.

You _____ to get the next term.

- **A sequence is geometric if the ratios of consecutive terms are the _____.**
- $\frac{a_2}{a_1} = \frac{a_3}{a_2} = \frac{a_4}{a_3} = \ldots\ldots = r$
- **The number *r* is the _____.**

Formula for a Geometric Sequence

Ex. 1 Are these geometric? If so, find the formula.

a. 2, 4, 8, 16…

b. 12, 36, 108, 324…

c. $1, \frac{-1}{3}, \frac{1}{9}, \frac{-1}{27} \ldots$

d. 1, 4, 9, 16…

Ex. 2 Write the first five terms of the geometric sequence whose first term is $a_1 = 9$ and $r = (1/3)$.

Ex. 3 Find a formula for the nth term, given 5, 15, 45… Find the 9th term.

Ex. 4 Find the first 3 terms given $a_n = 36(3)^{n-3}$

Ex. 5 The fourth term of a geometric sequence is 8 and the 7th term is 1. Find the geometric rule.

Sum of a Finite Geometric Series

Ex. 6 Find the Sum: $\sum_{n=1}^{12} 1.2(0.3)^{n-1}$

Ex. 7 Using a calculator, evaluate: $\sum_{n=4}^{10} 2(3)^{n-1}$