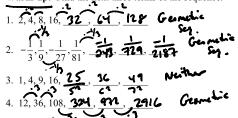


Geometric Sequences...

## Geometric Sequences and Series Section 6.7

Warm-up: Find the next three terms of the sequence.



## **Definition of a Geometric Sequence**

A sequence is geometric if the is a Constant ratio between back-b-back numbers

This ratio is called Common ratio

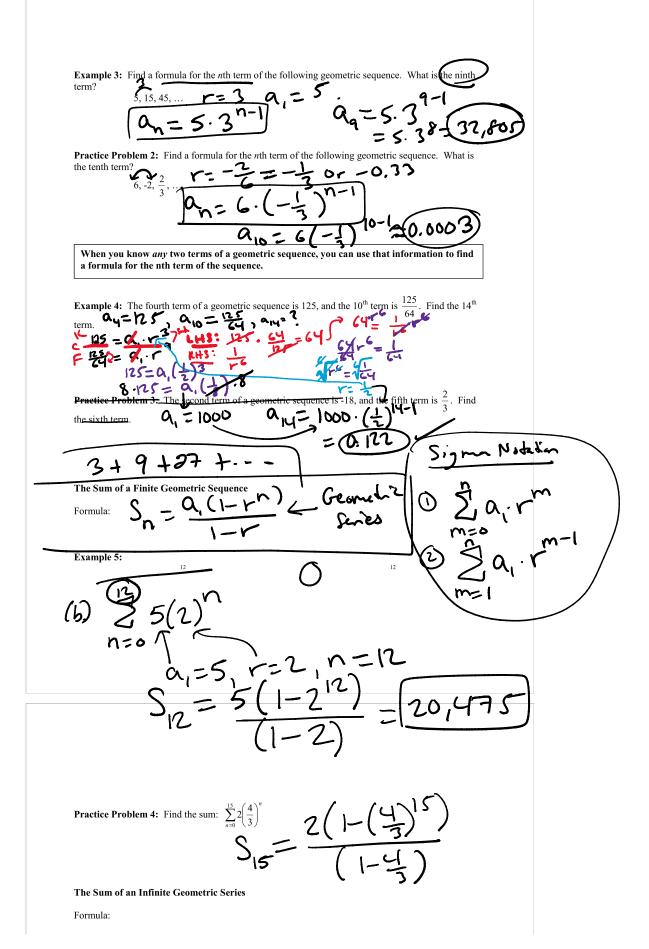
Example 1: Write the first five terms of the geometric sequence whose first term is 3 and whose



Example 2: Find the  $15^{th}$  term of the geometric sequence whose first term is 20 and whose common ratio is 1.05.

Practice Problem 1: Find the ninth term of the geometric sequen common ratio is  $\frac{1}{2}$ .

ag= 4(1)8 ~ (0.016



$$3n - \frac{1}{(1-2)} = \frac{1}{201473}$$

Practice Problem 4: Find the sum: 
$$\sum_{n=0}^{15} 2\left(\frac{4}{3}\right)^n = 2\left(1-\left(\frac{4}{3}\right)^{15}\right)$$

The Sum of an Infinite Geometric Series

Formula:

Example 6: Find each sum

a) 
$$\sum_{n=0}^{\infty} 4(0.6)^n$$

$$b) \sum_{n=0}^{\infty} 5 \left(\frac{1}{2}\right)^n$$

$$c) \sum_{n=0}^{\infty} 2(3)^n$$