

geometric sequences

A sequence where every successive term is found by MULTIPLYING BY THE SAME NUMBER is called **GEOMETRIC**

CHECK: Pick any term, divide it by the previous term. If the result is always the same no matter where in the sequence you begin, then the sequence is geometric.

EXAMPLE 1 - Is the sequence geometric?

a) 2, 6, 18, 54, 162, 486, ...

The terms are separated by a **COMMON RATIO** of 3 (we will call it "r")

b) 12, 6, 3, 1.5, 0.75, 0.375, ...

The terms are separated by a **COMMON RATIO** of _____

EXAMPLE 2 - Find the general term of the following geometric sequence

3, -12, 48, -192, ... the common ratio is _____

Observe and continue the pattern...

Symbolically...

1 st term	3	<i>a</i>
2 nd term	3(-4)	<i>ar</i>
3 rd term	3(-4)(-4)	<i>ar²</i>
4 th term	3	<i>a</i>
5 th term	3	<i>a</i>
6 th term	3	<i>a</i>

Do you see the pattern?

Geometric Sequences *continued...*

CONCLUSION: To find the general term of an geometric sequence

$$t_n =$$

where ***a*** is the _____

n is the _____ of the _____

and ***r*** is the _____

EXAMPLE 3 – Given the geometric sequence 3, 6, 12, 24, ...

a) Find the 14th term

b) Which term is 384?

EXAMPLE 4 – The 3rd term of an geometric sequence is 20 while the 6th term of the same sequence is -540.
Find the general term of the sequence and state the first 6 terms.