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

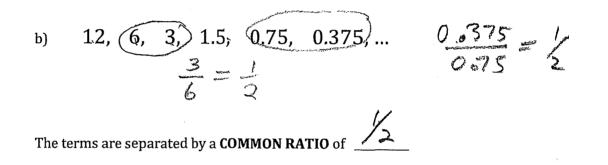
CHECK: Pick any term, divide it by the previous term. If the result is always the same no matter where in the sequence you begin, then the sequence is geometric.

EXAMPLE 1 – Is the sequence geometric?

a) 2, 6, 18, 54, 162, 486, ...,
$$\frac{486}{162} = 3$$

 $\frac{18}{6} = 3$

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



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

3, -12, 48, -192, ... the common ratio is $\underline{-}$

Observe and continue the pattern...

Symbolically...

1 st term	3	a	
2 nd term	3(-4)	ar,	
3 rd term	3(-4) (-4)	∖ar ²	
4 th term	3(-4)(-4)(-4)	a + 3	
5 th term	3 (-4)4	ar ⁴	
6 th term	3 (-4)5	ar ⁵	

Do you see the pattern?

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CONCLUSION: To find the general term of an geometric sequence $t_n = \alpha r^{n-1}$ rs. $t_n = \alpha + (n-1)d$ where a is the <u>first krm</u> n is the <u>NUMber</u> of the <u>term</u> and r is the <u>COMMEN</u> <u>JTAtio</u>

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

