# Geometric Means of a Sequence  Activity #37

**MAKE SURE TO FIND THE MISSING NUMBERS !!!!!**

1) 4, ____, _____, 32.

2) 1, _____, _____, _____, 81.

3) 5, _____, _____, 20.48

4) – 24, ____, ____, 1/9

5) 4, ____, _____, ____, 64

6) 3, ___, ___, ____, 3888

7) 48, ___, ___, ___, ____, 1.5

8) 3/5, ___, ___, ___, 375

9) 200, ___, ___, ___, 414.72

10) 5, ___, ____, ___, 405

This is a new formula. The only new part is the r. The r is just like the common difference in arithmetic sequences. Geometric just means you are multiplying now instead of adding and subtracting. Use the examples below to help you and make sure to find the missing numbers.

GEOMETRIC FORMULA: $\boxed{a_n = a_1 \cdot r^{n-1}}$

$a_n$ = last #
$a_1$ = first #
$n$ = how many numbers in the sequence
$r$ = common ratio: what are you multiplying by

Ex.1 5, ___, ___, −320

$-320 = 5 \cdot r^{4-1}$

$\frac{-320}{5} = \frac{5r^3}{5}$

$-64 = r^3$

$\sqrt[3]{-64} = \sqrt[3]{r^3}$

$\boxed{-4 = r}$ → multi. by −4

5, −20, 80, −320

Ex.2 3/4, ___, ___, ___, $\frac{3}{2500}$

$\frac{3}{2500} = \frac{3}{4} \cdot r^{5-1}$

$\frac{\frac{3}{2500}}{3/4} = \frac{\frac{3}{4} \cdot r^4}{3/4}$

$.0016 = r^4$

$\sqrt[4]{.0016} = \sqrt[4]{r^4}$ → calculator

$\boxed{.2 = r}$

$\sqrt[n]{\ }$ → Desmos

4 Math $\sqrt[x]{\ }$

3/4, .15, .03, .006, $\frac{3}{2500}$