Geometric sequences

- this is a sequence of numbers increasing geometrically, by multiplication — 5, 10, 20, 40, 80, 160... the ratio for this is $r = 2$
- 360, 120, 40, $\frac{40}{3}$... the ratio is: $r = \frac{1}{3}$
- the terms in the sequence can be described using: $t_1, t_2, t_3, t_4, t_5 \ldots, t_n$

the first term is called 'a' — the last term is called t_n

- 'n' is the number of terms in the sequence

formula: $t_n = ar^{n-1}$ → $t_n = a \cdot r \cdot r \cdot r \cdot r \ldots$

there is one less multiplication then there are terms.

$a = 4$, $r = 3$ } $t_2 = 4 \cdot 3^{(2-1)} = 12$ $t_3 = 4 \cdot 3^{(3-1)} = 36$ $t_4 = 4 \cdot 3^{(4-1)} = 108$ $t_{20} = 4 \cdot 3^{(20-1)} =$

- Finding the ratio 'r'
  - take any two consecutive terms and divide them. $r = \frac{t_2}{t_1}$ $r = \frac{t_{15}}{t_{14}}$ $r = \frac{t_4}{t_3}$ $r = \frac{t_n}{t_{n-1}}$

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