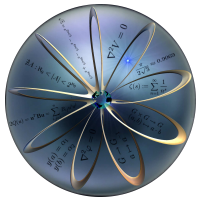

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geometric sequence

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Defines	common ratio

A sequence of the form

$$a,\ ar,\ ar^2,\ ar^3,\ \ldots$$

of real or complex numbers is called *geometric sequence*. of the geometric sequence is thus that every two consecutive members of the sequence have the constant ratio r, called usually the *common ratio* of the sequence (if $ar = 0$, speaking the ratio of members does not exist).

The n^{th} member of the geometric sequence has the

$$a_n = ar^{n-1}.$$

Let $a \neq 0$. The sequence is convergent for $|r| < 1$ having the `http://planetmath.org/LimitOfRe` 0, and for $r = 1$ having as constant sequence the limit a.

When the members of the sequence are positive numbers, each member is the geometric mean of the preceding and the following member; the name "geometric sequence" (or "geometric series") is due to this fact (a fact is true for the harmonic series and harmonic mean).