METHODS AND MEANINGS

MATH NOTES

Types of Sequences

An **arithmetic sequence** is a sequence with an addition (or subtraction) generator. The number added to each term to get the next term is called the**common difference**.

A **geometric sequence** is a sequence with a multiplication (or division) generator. The number multiplied by each term to get the next term is called the **common ratio** or the **multiplier**.

A multiplier can also be used to increase or decrease by a given percentage. For example, the multiplier for an increase of 7% is 1.07. The multiplier for a decrease of 7% is 0.93.

A **recursive sequence** is a sequence in which each term depends on the term(s) before it. The equation of a recursive sequence requires at least one term to be specified. A recursive sequence can be arithmetic, geometric, or neither.

For example, the sequence –1, 2, 5, 26, 677, … can be defined by the**recursive equation**:

$$t(1) = -1, \quad t(n+1) = (t(n))^2 + 1$$

An alternative notation for the equation of the sequence above is:

$$a_1 = -1, \quad a_{n+1} = (a_n)^2 + 1$$