ARITHMETIC FORMULAS

Explicit

$$a_n = a_1 + d(n-1)$$

Recursive

a_1 must be defined

$$a_n = a_{n-1} + d$$

Sum of a Finite Arithmetic Series

$$S_n = \frac{n}{2}(a_1 + a_n)$$

GEOMETRIC FORMULAS

Explicit

$$a_n = a_1(r)^{n-1}$$

Recursive

a_1 must be defined

$$a_n = a_{n-1}(r)$$

Sum of a Finite Geometric Series

$$S_n = \frac{a_1(1 - r^n)}{1 - r}$$

Sum of an Infinite Geometric Series

$$\text{If } |r| < 1, \text{ then } S = \frac{a_1}{1 - r}.$$