

Sequences and Series Formulas

Arithmetic

$$a_n = dn + c$$

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

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

$$S_n = \frac{n}{2}[2a_1 + (n-1)d]$$

Geometric

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

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

$$S_\infty = \frac{a_1}{1-r}, \quad |r| < 1$$