

Arithmetic progression:

$$\text{n - th term } a_n = a_1 + (n-1) d$$

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

Geometric progression:

$$\text{n - th term } a_n = a_1 r^{n-1}$$

$$\text{Sum of } n \text{ terms } S_n = \frac{r a_n - a_1}{r-1} \quad \text{or} \quad S_n = \frac{a_1 (r^n - 1)}{r-1}$$

$$\text{Sum of infinite terms } S_\infty = \frac{a_1}{1-r} \quad \text{where } 0 < r < 1$$