

$$\sum_{k=1}^n 1 = n$$

$$\sum_{k=1}^n k = \frac{n(n+1)}{2}$$

$$\sum_{k=1}^n k^2 = \frac{n(n+1)(2n+1)}{6}$$

$$\sum_{k=1}^n k^3 = \left(\frac{n(n+1)}{2} \right)^2$$