

Sigma Notation

Theorem

Sigma notation obeys the following properties

$$\sum_{i=m}^n [f(i) + g(i)] = \sum_{i=m}^n f(i) + \sum_{i=m}^n g(i),$$

$$\sum_{i=m}^n cf(i) = c \sum_{i=m}^n f(i)$$

if c is a constant (independent of i).

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

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

$$\sum_{i=1}^n i^3 = \frac{n^2(n+1)^2}{4}$$