

Summation notation

$$\sum_{i=L}^U a_i = a_L + a_{L+1} + \cdots + a_{U-1} + a_U$$

Sum := 0

For i from L to U

 Sum := Sum + a[i]

return Sum

Some facts about sums.

This is factoring.

$$\sum_{i=L}^U ca_i = c \sum_{i=L}^U a_i$$

Add any way you want.

$$\sum_{i=L}^U a_i \pm b_i = \sum_{i=L}^U a_i \pm \sum_{i=L}^U b_i$$

Counting 1's.

$$\sum_{i=L}^U 1 = \sum_{i=1}^{U-(L-1)} 1 = U - L + 1$$

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

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

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

$$\sum_{i=1}^n i^4 = \frac{n(n+1)(2n+1)(3n^2+3n-1)}{30}$$

