``Sigma'' notation (C)

We need a ``shorthand'' to represent sums with more than a few terms. If $f(n)$ is a rule which assigns the number $f(n)$ to each integer n in the set of integers $\{K, K+1, \ldots L\}$, such as $f(n) = 2^n$, or $f(n) = 2n+6$, etc, then

$$\sum_{n=K}^{L} f(n)$$

denotes the sum of the values $f(K)$, $f(K+1)$, . . . , $f(L)$, and is read ``The sum of $f(n)$ from $n = K$ to L''. For example

$$\sum_{n=2}^{5}(2n+1) = (2\cdot 2+1)+(2\cdot 3+1)+(2\cdot 4+1)+(2\cdot 5+1) = 5+7+9+11 = 32$$

and

$$\sum_{k=-2}^{5} 2^k = 2^{-2}+2^{-1}+2^0+2^1+2^2+2^3+2^4+2^5 = \frac{3}{4}+63$$

Exercises Evaluate each of the following:

1.

$$\sum_{j=-2}^{4}(2j-3)$$

;

2.

$$\sum_{j=0}^{5} j^2$$

;

3.

$$\sum_{j=-8}^{-2} sin(j\pi/6)$$

;
4.

$$\sum_{a=0}^{4} (1/2)^a$$

;