geometric series	$$\sum_{0 \le k < n} x^k = \frac{1 - x^n}{1 - x}$$
arithmetic series	$$\sum_{0 \le k < n} k = \frac{n(n-1)}{2} = \binom{n}{2}$$
binomial coefficients	$$\sum_{0 \le k \le n} \binom{k}{m} = \binom{n+1}{m+1}$$
binomial theorem	$$\sum_{0 \le k \le n} \binom{n}{k} x^k y^{n-k} = (x+y)^n$$
harmonic numbers	$$\sum_{1 \le k \le n} \frac{1}{k} = H_n$$
sum of harmonic numbers	$$\sum_{1 \le k < n} H_k = nH_n - n$$
Vandermonde convolution	$$\sum_{0 \le k \le n} \binom{n}{k} \binom{m}{t-k} = \binom{n+m}{t}$$

Table 2.2 Elementary discrete sums