arithmetic series

geometric series

binomial coefficients

binomial theorem

Vandermonde convolution

$$\sum_{0 \le k;}$$

Table 2.2 Elementary discrete sums

$$\sum_{1 \le k \le n} \frac{1}{k} = H_n$$

$$\sum_{0 \le k \le n} \binom{n}{k} x^k y^{n-k} = (x+y)^n$$

 $\sum_{0 \le k < n} x^k = \frac{1 - x^n}{1 - x}$

$$\sum_{0 \le k \le n} \binom{k}{m} = \binom{n+1}{m+1}$$

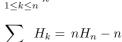






 $\sum k = \frac{n(n-1)}{2} = \binom{n}{2}$





 $\sum_{n \in \mathbb{N}} \binom{n}{k} \binom{m}{t-k} = \binom{n+m}{t}$

 $1 \le k \le n$