

KOMBINATORICKÉ IDENTITY – UŽITEČNÉ VZORCE

Proměnné, u kterých není uvedeno omezení, mohou být libovolná (komplexní) čísla.

Vzorec	Omezení
$\binom{n}{k} = \binom{n}{n-k}$	$n \in \mathbb{N}_0, k \in \mathbb{Z}$
$\binom{r}{k} = \frac{r}{k} \binom{r-1}{k-1}$	$0 \neq k \in \mathbb{Z}$
$\binom{r}{k} = \binom{r-1}{k} + \binom{r-1}{k-1}$	$k \in \mathbb{Z}$
$\binom{r}{k} = (-1)^k \binom{k-r-1}{k}$	$k \in \mathbb{Z}$
$\binom{r}{m} \binom{m}{k} = \binom{r}{k} \binom{r-k}{m-k}$	$m, k \in \mathbb{Z}$
$\sum_{k \leq n} \binom{r+k}{k} = \binom{r+n+1}{n}$	$n \in \mathbb{Z}$
$\sum_{0 \leq k \leq n} \binom{k}{m} = \binom{n+1}{m+1}$	$m, n \in \mathbb{N}_0$
$\sum_k \binom{r}{m+k} \binom{s}{n-k} = \binom{r+s}{m+n}$	$m, n \in \mathbb{Z}$
$\sum_k \binom{l}{m+k} \binom{s}{n+k} = \binom{l+s}{l-m+n}$	$l \in \mathbb{N}_0, m, n \in \mathbb{Z}$
$\sum_k \binom{l}{m+k} \binom{s+k}{n} (-1)^k = (-1)^{l+m} \binom{s-m}{n-l}$	$l \in \mathbb{N}_0, m, n \in \mathbb{Z}$
$\sum_{k \leq l} \binom{l-k}{m} \binom{s}{s-k} (-1)^k = (-1)^{l+m} \binom{s-m-l}{l-m-n}$	$l, m, n \in \mathbb{N}_0$
$\sum_{0 \leq k \leq l} \binom{l-k}{m} \binom{q+k}{n} = \binom{l+q+1}{m+n+1}$	$l, m, n, q \in \mathbb{N}_0, n \geq q$