

## Theorem

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

Note by the

$$\binom{n}{k} = \binom{n}{n-k},$$

we also have

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