$$n^{\underline{k}} = \frac{n!}{(n-k)!}$$

$$\frac{n!}{k!(n-k)!}$$

$$n^{\underline{k}} = \frac{n!}{(n-k)!}$$

$$\frac{1}{k!} \cdot n^{\underline{k}} = \frac{n!}{k!(n-k)!}$$

$$n^{\underline{k}} = \frac{n!}{(n-k)!}$$

$$\binom{n}{k} = \frac{1}{k!} \cdot n^{\underline{k}} = \frac{n!}{k!(n-k)!}$$

$$n^{\underline{k}} = \frac{n!}{(n-k)!}$$

$$\binom{n}{k} = \frac{1}{k!} \cdot n^{\underline{k}} = \frac{n!}{k!(n-k)!} = \frac{1}{(n-k)!} \cdot n^{\underline{n-k}}$$

$$n^{\underline{k}} = \frac{n!}{(n-k)!}$$

$$\binom{n}{k} = \frac{1}{k!} \cdot n^{\underline{k}} = \frac{n!}{k!(n-k)!} = \frac{1}{(n-k)!} \cdot n^{\underline{n-k}} = \binom{n}{n-k}$$

Equivalent formulations

A combinatorial approach

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

