

Solution (#266) Note that

$$\binom{n}{k} = \frac{n!}{k!(n-k)!} = \frac{n!}{(n-k)!(n-(n-k))!} = \binom{n}{n-k}.$$

With $k = n$

$$\binom{n}{n} = \binom{n}{0} = \frac{n!}{0!n!} = 1,$$

and finally with $k = 1$

$$\binom{n}{n-1} = \binom{n}{1} = \frac{n!}{1!(n-1)!} = \frac{n(n-1)!}{1!(n-1)!} = n.$$