

$$= \frac{(k+1)! (n-k)!}{n! (k+1)} + \frac{(k+1)! (n-k)!}{n! (n-k)}$$

$$= \frac{k! (n-k)(n-k-1)! (k+1)}{n! (k+1)} + \frac{k! (n-k)(n-k-1)! (k+1)}{n! (n-k)}$$

$$= \frac{k! (n-k)(n-k-1)! (k+1)}{n! (k+1) + n! (n-k)}$$

Also:

$$\frac{k! (n-k)(n-k-1)!}{n!} + \frac{(k+1)k! (n-k-1)!}{n!}$$

$$\frac{k! (n-k)!}{n!} + \frac{(k+1)! (n-k-1)!}{n!}$$