

Relação de Stifel.

$$\binom{n}{p} + \binom{n}{p+1} = \binom{n+1}{p+1}$$

Demonstração:

$$\begin{aligned} \binom{n}{p} + \binom{n}{p+1} &= \frac{n!}{p!(n-p)!} + \frac{n!}{(p+1)!(n-p-1)!} = \frac{n!(p+1) + n!(n-p)}{(p+1)!(n-p)!} = \\ &= \frac{n!(n+1)}{(p+1)!(n-p)!} = \frac{(n+1)!}{(p+1)!(n-p)!} = \frac{(n+1)!}{(p+1)![(n+1)-(p+1)]!} = \binom{n+1}{p+1} \end{aligned}$$

C.Q.D.

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Comunicar erro: "a.vandre.g@gmail.com".