

$$\binom{m+n}{m} = \frac{(m+n)!}{m!n!} = \frac{\overbrace{(m+n)(m+n-1)\cdots(n+1)}^{n \text{ terms}}}{\underbrace{m(m-1)\cdots 1}_m}$$

$$\overline{x+y} = \bar{x} + y$$