

مثال: حاصل عبارات زیر را بدست آورید:

$$\begin{aligned} & \begin{pmatrix} 8 \\ 3 \end{pmatrix} + \begin{pmatrix} 8 \\ 4 \end{pmatrix} + \begin{pmatrix} 9 \\ 5 \end{pmatrix} + \begin{pmatrix} 10 \\ 6 \end{pmatrix} + \begin{pmatrix} 11 \\ 7 \end{pmatrix} \\ & \underbrace{\hspace{10em}}_{\begin{pmatrix} 9 \\ 4 \end{pmatrix}} \\ & \underbrace{\hspace{10em}}_{\begin{pmatrix} 10 \\ 5 \end{pmatrix}} \\ & \underbrace{\hspace{10em}}_{\begin{pmatrix} 11 \\ 6 \end{pmatrix}} \\ & \underbrace{\hspace{10em}}_{\begin{pmatrix} 12 \\ 7 \end{pmatrix}} \end{aligned}$$

$$\binom{2}{2} + \binom{3}{2} + \binom{4}{2} + \dots + \binom{20}{2} = \underbrace{\binom{3}{3} + \binom{3}{2} + \dots + \binom{20}{2}}_{\binom{21}{3}} = \binom{21}{3}$$

$$2^n + \binom{n}{1} 2^{n-1} + \dots + \binom{n}{n} =$$

$$(2+1)^n = 3^n$$