Binomial coefficients.

$$\left(\begin{array}{c} \Gamma \end{array} \right) = \frac{\Gamma \left(\left(\Omega - \Gamma \right) \right)}{\Gamma \left(\left(\Omega - \Gamma \right) \right)}$$

1) Show that

$$L\left(\begin{array}{c} L \\ U \end{array}\right) = U\left(\begin{array}{c} L-1 \\ U-1 \end{array}\right)$$

Solution

$$\Gamma\left(\begin{array}{c} \Gamma \end{array}\right) = \frac{\Gamma' \times \Gamma'}{\Gamma \times \Gamma'}$$

$$=$$
 $0 \times (0-1)!$

$$(r-1)$$
 × $(r-1)$ + $(r-1)$ = $(r-1)$

[= [x(-1)]

$$= \cap \left(\bigcap_{r=1}^{n-1} \right)$$

$$\begin{pmatrix} 0 - L \end{pmatrix} = \frac{C + I}{C + I} \begin{pmatrix} L \\ L \end{pmatrix}$$

Solution

$$\binom{n-r}{r} = \frac{(n-r)!(r+i)!}{(n+i)!}$$

$$\begin{array}{l}
\text{useful} \\
(n+1)-(n-r) = r+1
\end{array}$$

$$\frac{(U-L)! \times (L+1) \times L!}{(U+1) \times U!}$$

$$= \frac{L+1}{U+1} \times \frac{(U-L)iLi}{Ui}$$

$$= \frac{L+1}{U+1} \left(\frac{L}{U} \right)$$