8
a

$$B_J = -D^{-1}(L + U)$$

$$= -D^{-1} \cdot \left(\begin{bmatrix} 0 & & & \\ a_{21} & 0 & & \varnothing \\ \vdots & & \ddots & \\ a_{n1} & \cdots & a_{n,n-1} & 0 \end{bmatrix} + \begin{bmatrix} 0 & a_{12} & \cdots & a_{1n} \\ & 0 & \ddots & \vdots \\ \varnothing & & \ddots & a_{n-1,n} \\ & & & 0 \end{bmatrix} \right)$$

$$= -\begin{bmatrix} \frac{1}{a_{11}} & & \varnothing \\ & \ddots & \\ \varnothing & & \frac{1}{a_{nn}} \end{bmatrix} \cdot \begin{bmatrix} 0 & a_{12} & \cdots & a_{n1} \\ a_{21} & 0 & \ddots & \\ \vdots & & \ddots & a_{n,n-1} \\ a_{1n} & \cdots & a_{n-1,n} & 0 \end{bmatrix}$$

$$B_J = \varnothing \longrightarrow \|B_J\|_\infty < 1 \quad \therefore$$