$$C \approx \frac{\| x_h - x_{h-1} \|_\infty}{\| x_{h-1} - x_{h-2} \|_\infty}$$

$$C \approx \frac{\| x_2 - x_1 \|_\infty}{\| x_1 - x_0 \|_\infty} = \frac{-\frac{11}{8} + \frac{11}{4}}{-\frac{11}{4} - \phi}$$

$$=$$

$$A = \begin{bmatrix} -4 & -1 & 0 \\ -1 & -4 & -1 \\ 0 & -1 & -4 \end{bmatrix}$$

$$x_\phi = \begin{bmatrix} \phi \\ \phi \\ \phi \end{bmatrix}$$

$$b = \begin{bmatrix} 2 \\ 4 \\ 10 \end{bmatrix}$$

$$x_1 = \begin{bmatrix} -\frac{1}{4}(2 - (-1 \cdot \phi)) - (\phi \cdot \phi)) \\ -\frac{1}{4}(4 - (-1 \cdot \phi)) - (-1 \cdot \phi)) \\ -\frac{1}{4}(10 - (\phi \cdot \phi)) - (-1 \cdot \phi)) \end{bmatrix}$$

$$= -\frac{1}{4} \begin{bmatrix} 3 \\ 6 \\ 1 \end{bmatrix} = \begin{bmatrix} -3/4 \\ -3/2 \\ -1/4 \end{bmatrix}$$

$$x_2 = -\frac{1}{4} \begin{bmatrix} (2 - (-1 \cdot -3/2) - (\phi \cdot -1/4)) \\ (4 - (-1 \cdot -3/4) - (-1 \cdot -1/4)) \\ (10 - (\phi \cdot -3/4) - (-1 \cdot -3/2)) \end{bmatrix}$$

I) CALC FIRST C

$$\left(C_1 \approx \frac{\| x_2 - x_1 \|_\infty}{\| x_1 - x_0 \|_\infty} \right) = -\frac{1}{4} \begin{bmatrix} (\frac{4}{2} - 3/2) - \phi \\ (16/4 - 3/4) - 11/4 \\ (40/4 - \phi) - 3/2 \end{bmatrix} = -\frac{1}{4} \begin{bmatrix} 1/2 \\ 1/2 \\ 17/2 \end{bmatrix} = \begin{bmatrix} -1/8 \\ -1/8 \\ -17/8 \end{bmatrix}$$