**5**

$$\|A\|_\infty = \text{MAX ROW ABS. SUM} = 4 + 1 + 2 = \boxed{7}$$

$$\|A\|_\infty = 7 \stackrel{!}{=} \frac{\|Ax\|_\infty}{\|x\|_\infty} \longrightarrow \|x\|_\infty \stackrel{!}{=} 1$$

$$\longrightarrow \boxed{x = \begin{bmatrix} -1 \\ 1 \\ 1 \end{bmatrix}}$$

$$\begin{bmatrix} 2 & -7 & 1 \\ -4 & 1 & 2 \\ 5 & 0 & 1 \end{bmatrix} \begin{bmatrix} -1 \\ 1 \\ 1 \end{bmatrix} = \begin{bmatrix} -4 \\ 7 \\ -4 \end{bmatrix} \therefore$$