

CONSIDER

$$A = \begin{bmatrix} 2 & 3 & 1 \\ -4 & 1 & 2 \\ 5 & 0 & 1 \end{bmatrix}$$

COMPUTE $\|A\|_\infty$

FIND VECTOR x SUCH THAT:

$$\|A\|_\infty = \frac{\|Ax\|_\infty}{\|x\|_\infty}$$

$$\|x\|_\infty = \max \{ |x_i|, i = 1, \dots, n \}$$

$$\|A\|_\infty = \max_A \|Ax\|_\infty$$

$$\rightarrow \max_i \sum_j |A_{ij}|$$

$$\begin{bmatrix} (2 & -3 & 1) \\ (-4 & 1 & 2) \\ (5 & 0 & 1) \end{bmatrix} \begin{matrix} \rightarrow 2 + 3 + 1 = 6 \\ \rightarrow 4 + 1 + 2 = 7 \\ \rightarrow 5 + 1 = 6 \end{matrix}$$

$\|A\|_\infty = 7$

SOLN

FOR VECTOR A BUT W/IF MATRIX A ?
THE ROWWISE ABS. VAL SUM OF GREATEST MAGNITUDE