Day 4

① If A is a 4×4 matrix and $\begin{bmatrix} 5 \\ 0 \\ 0 \\ 1 \end{bmatrix} \in N(A)$, what can you say about $LS\left(A, \begin{bmatrix} 2 \\ 3 \\ 4 \\ 5 \end{bmatrix}\right)$?

② Assume A is a 4×7 matrix and A is row-equivalent to

$$R = \begin{bmatrix} 1 & 4 & 6 & -1 & 0 & 0 & 5 \\ 0 & 0 & 1 & 2 & 0 & 0 & 0 \\ 0 & 0 & 0 & 0 & 1 & 0 & 3 \\ 0 & 0 & 0 & 0 & 0 & 1 & -3 \end{bmatrix}$$

Fill in the blank vectors:

$$N(A) = \left\{ x_2 \begin{bmatrix} \\ \\ \\ \\ \\ \\ \\ \end{bmatrix} + x_4 \begin{bmatrix} \\ \\ \\ \\ \\ \\ \\ \end{bmatrix} + x_7 \begin{bmatrix} \\ \\ \\ \\ \\ \\ \\ \end{bmatrix} \right.$$

$$\left. x_2, x_4, x_7 \in \mathbb{C} \right\}$$

(Each column vector should have 7 rows.)

(3) $20 \begin{bmatrix} 4 \\ -3 \end{bmatrix} - 7 \begin{bmatrix} 1 \\ 2 \end{bmatrix} = ?$