Day 13

① $A = \begin{bmatrix} 1 & 2 & 10 & 13 & -3 \\ 2 & 5 & 24 & 31 & -8 \\ -3 & -8 & -38 & -49 & 14 \\ 1 & 1 & 6 & 8 & -2 \end{bmatrix}$

$A^t \xrightarrow{\text{RREF}} \begin{bmatrix} 1 & 0 & 0 & 4 \\ 0 & 1 & 0 & -3 \\ 0 & 0 & 1 & -1 \\ 0 & 0 & 0 & 0 \end{bmatrix}$

A^t, not A!

- $R(A)$ is spanned by a set of <u>three</u> vectors. Find such a set.
- $C(A)$ is also spanned by a set of <u>three</u> vectors. Find such a set. Hint: $C(A) = R(A^t)$.
- Find one vector that spans $L(A)$.

Day 13

(2) $B = \begin{bmatrix} 14 & 5 & 19 & -9 & -1 \\ 5 & 1 & 6 & -4 & 7 \\ -1 & 7 & 6 & 8 & -12 \\ 0 & -2 & -2 & -2 & 1 \end{bmatrix}$

$$[B^t \mid I_5] \xrightarrow{\text{RREF}} \left[\begin{array}{ccccc|ccccc} 1 & 0 & 0 & .112 & & 0 & 0 & .0064 & -.0912 & -.0576 \\ 0 & 1 & 0 & -.376 & & 0 & 0 & .0928 & .1776 & .1648 \\ 0 & 0 & 1 & -.312 & & 0 & 0 & .0536 & .1112 & .0176 \\ 0 & 0 & 0 & 0 & & 1 & 0 & -.5 & .5 & 0 \\ 0 & 0 & 0 & 0 & & 0 & 1 & -.5 & -.5 & 0 \end{array}\right]$$

Find independent spanning sets for each of

$C(B)$, $R(B)$, $L(B)$, $N(B)$.