

M 340 L - Quiz 1

06-10-08

1 Exercise 1.2, # 3 (solution)

$$\begin{pmatrix} 1 & 2 & 3 & 4 \\ 4 & 5 & 6 & 7 \\ 6 & 7 & 8 & 9 \end{pmatrix} \begin{array}{l} \longrightarrow \\ R_2 - 4R_1 \\ R_3 - 6R_1 \end{array} \begin{pmatrix} 1 & 2 & 3 & 4 \\ 0 & -3 & -6 & -9 \\ 0 & -5 & -10 & -15 \end{pmatrix}$$

$$\begin{array}{l} \longrightarrow \\ (-1/3)R_2 \\ R_3 + 5\tilde{R}_2 \end{array} \begin{pmatrix} 1 & 2 & 3 & 4 \\ 0 & 1 & 2 & 3 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$

$$\begin{array}{l} \longrightarrow \\ R_1 - 2R_2 \end{array} \begin{pmatrix} 1 & 0 & -1 & -2 \\ 0 & 1 & 2 & 3 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$

Therefore:

(1) The reduced echelon form of A is

$$\begin{pmatrix} 1 & 0 & -1 & -2 \\ 0 & 1 & 2 & 3 \\ 0 & 0 & 0 & 0 \end{pmatrix}$$

(2) The pivot columns of A are the first one and the second one.