Course 2E2 2008-09 (SF Engineers & MSISS & MEMS)

S h e e t 6

Due: at the end of the tutorial

Exercise 1

Find bases and dimensions for the row, column and null spaces of the matrix:

(i) $\begin{pmatrix} -1 & -3 \end{pmatrix}$;

(ii) $\begin{pmatrix} -1 \\ -3 \end{pmatrix}$;

(iii) $\begin{pmatrix} 1 & -2 \\ -1 & 2 \end{pmatrix}$;

(iv) $\begin{pmatrix} 1 & 3 & 0 \\ -1 & 2 & 1 \end{pmatrix}$;

(v) $\begin{pmatrix} 1 & 2 \\ -1 & 2 \\ 2 & 0 \end{pmatrix}$;

Exercise 2

Find the subset of the vectors that forms a basis of their span:

(i) $\mathbf{u}_1 = (-1, 1, 1)$, $\mathbf{u}_2 = (2, -2, -2)$.

(ii) $\mathbf{u}_1 = (2, -1, 0)$, $\mathbf{u}_2 = (1, 1, 1)$, $\mathbf{u}_3 = (0, -3, -2)$.