

Course 2E01 2017 (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) $\begin{pmatrix} 1 & 2 & 1 \\ 1 & -1 & 0 \end{pmatrix}$;

(ii) $\begin{pmatrix} -3 & -6 \\ 1 & 2 \\ -4 & -8 \end{pmatrix}$;

(iii) $\begin{pmatrix} -3 & -6 & 1 \\ 1 & 2 & 1 \\ -4 & -8 & 1 \end{pmatrix}$.

Exercise 2

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

(i) $\mathbf{v}_1 = (1, 1, -2)$, $\mathbf{v}_2 = (-2, -2, 4)$;

(ii) $\mathbf{v}_1 = (2, 1)$, $\mathbf{v}_2 = (1, 2)$, $\mathbf{v}_3 = (1, 1)$, $\mathbf{v}_4 = (-1, 2)$.