

**Course 2E02 2014 (SF Engineers & MSISS & MEMS)****S h e e t 5**

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Due: at the end of the tutorial

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**Exercise 1**

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

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

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

**Exercise 2**

Find the rank and the nullity of the matrix:

(i)  $\begin{pmatrix} 3 & -3 & -3 \\ -2 & 2 & 2 \end{pmatrix};$

(ii)  $\begin{pmatrix} 4 & -4 & -4 \\ 1 & 1 & 1 \\ 3 & 0 & 0 \end{pmatrix}.$