MTH 329 Quiz 9

$$A = \begin{bmatrix} 3 & 1 & 0 \\ 0 & 1 & 1 \\ 4 & 2 & -1 \end{bmatrix}$$

To find nul(A), solve the system

$$A\vec{x} = \vec{0}, \text{ where } \vec{x} = \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix}$$

Use rref

$$\begin{bmatrix} 3 & 1 & 0 \\ 0 & 1 & 1 \\ 4 & 2 & -1 \end{bmatrix} \overset{rref}{\sim} \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$\Rightarrow$ Solution is
$$\vec{x} = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix}$$

$\Rightarrow$ nul(A) = span $\left\{ \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \right\} = \left\{ \vec{0} \right\}$

$\uparrow$
space with
only the zero vector