Tutorial Workheet-6

Name and section: _____

Instructor's name: _____

1. Find the rref of the following matrix.

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

2. Check whether the matrix $A = \begin{bmatrix} 0 & -2 & 0 \\ 1 & 3 & 0 \\ 0 & 0 & 1 \end{bmatrix}$ is diagonalizable or not over the field $\mathbb{R}$.

3. The set $B = \left\{ \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}, \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix} \right\}$ is a basis of $\mathbb{R}^3$. Use the Gram-Schmidt process to create an orthonormal basis of $\mathbb{R}^3$.