QUIZ NO: 3 Name:_____ ID:_____ Section_____

Q1a. (2 points) Check if the three vectors $\vec{u} = (1,1,0), \vec{v} = (4,3,1), \vec{w} = (3,-2,-4)$ are linearly independent or dependent?

Q1b. (1 point) Do these vectors form a basis of $\Re^3$?

Q2. (2 points) Write the vector $\vec{w} = (3,1,-2)$ as a linear combination of vectors $\vec{u} = (1,\ 2,\ -3), \vec{v} = (3,\ 1,\ -2)$.

Q3. (2 points) The set W is a set of all vectors in $\Re^3$ such that $x_2 = 0$. Is this set a sub-space of $\Re^3$?

Q3. (3 points) The row rank of the matrix $\begin{pmatrix} 1 & 0 & -1/2 & 0 \\ 0 & 1 & 1 & \\ 0 & 0 & 0 & 0 \\ 0 & 0 & 0 & 1 \end{pmatrix}$ is 3. What is its column rank? **<u>JUSTIFY</u> the answer.**