# Quiz 7

Student ID Number: Name _____

Math 3A, 6PM

Please justify all your answers December 6, 2018

Please also write your full name on the back

1. Is

$$\left\{ \begin{bmatrix} 1 \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 1 \\ -1 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 1 \\ -2 \end{bmatrix} \right\}$$

an orthogonal basis for $\mathbb{R}^3$?

2. True or False? Explain.

   (a) Let $u, v \in \mathbb{R}^n$. If $u$ is orthogonal to $v$ then $v$ is orthogonal to $u$.

   (b) Let $A$ be an $n \times n$ matrix whose columns form an orthonormal basis for $\mathbb{R}^n$. Then $A^T A = I$.