ENGR222 Assignment 4

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2. Suppose $T : \mathbb{R}^3 \to \mathbb{R}^4$ is a linear transformation, and

$$T(2, 0, -1) = 1, 0, 2, 1),\ T(0, 1, 1) = (-4, 3, 1, 0),\ T(-3, 1, 2) = (0, 1, -2, 0)$$

   Find the matrix A so that $T\mathbf{v} = A\mathbf{v}$ for all $\mathbf{v} \in \mathbb{R}^3$

3. Find the matrix for the projection $\mathbb{R}^3 \to \mathbb{R}^2$ onto yz-plane (i.e., $(x, y, z) \to (y, z)$)

4. Find the eigenvalues and eigenvectors for each eigenvalue of the following:

$$\begin{bmatrix} -2 & 1 & -1 \\ 19 & -5 & 4 \\ 43 & -13 & 12 \end{bmatrix}$$