Assignment 6 - Objective

The due date for submitting this assignment has passed. Due on 2020-04-08, 23:59 IST. As per our records you have not submitted this assignment.

1) State whether True or False.  
Consider a linear transformation $T : \mathbb{R}^3 \rightarrow \mathbb{R}^3$ defined as $T(x) = Ax$, for all $x \in \mathbb{R}^3$. Then $A$ is orthogonal if $T$ is an isometry, but not conversely.

No, the answer is incorrect. 
Score: 0
Accepted Answers: False

2) State whether True or False.  
Let $A = \begin{bmatrix} u & v & w \end{bmatrix}$ be a $3 \times 3$ real orthogonal matrix, where $u, v, w \in \mathbb{R}^3$ are column vectors. Then $u + v$ is orthogonal to $v + w$.

No, the answer is incorrect. 
Score: 0
Accepted Answers: False

3) State whether True or False.  
Let $A$ be a $3 \times 3$ matrix such that $\det A > 0$. Then the linear map defined by $A$ is an isometry.
4) State whether True or False. 

There exists an even positive integer \( n \) and an \( n \times n \) real symmetric matrix \( A \) such that \( A \) has only \( n/2 \) distinct eigenvalues.

- True
- False

No, the answer is incorrect. 
Score: 0
Accepted Answers: False

State whether True or False. 

There exists an even positive integer \( n \) and an \( n \times n \) real symmetric matrix \( A \) such that \( A \) has only \( n \) distinct eigenvalues.

- True
- False

No, the answer is incorrect. 
Score: 0
Accepted Answers: True