Assignment 5 - Objective

The due date for submitting this assignment has passed. Due on 2020-04-01, 23:59 IST. As per our records you have not submitted this assignment.

1) For every \( n \in \mathbb{Z}^+ \), let
\[
P_n = \{ f(X) = a_0 + a_1 X + \cdots + a_n X^n : a_0, a_1, \ldots, a_n \in \mathbb{R} \}.
\]
Define \( T : P_3 \to P_5 \) as
\[
T(f(X)) = \int_0^X \int_0^Y f(U) \, dU \, dY,
\]
for all \( f(X) \in P_3 \).
State whether True or False. \( T \) is a linear map.

- True
- False

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

2) State whether True or False. \( \mathbb{R}^3 \) with the usual inner product has a unique orthonormal basis. 1 point

- True
- False

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

3) Let \( \{ u_1, u_2, u_3 \} \), \( \{ v_1, v_2, v_3 \} \) be two orthonormal bases of \( \mathbb{R}^3 \) with the usual inner product. Let \( U = \begin{bmatrix} u_1 & u_2 & u_3 \end{bmatrix} \) and \( V = \begin{bmatrix} v_1 & v_2 & v_3 \end{bmatrix} \). Suppose there exists a \( 3 \times 3 \) matrix \( A \) such that \( U = AV \). Then
Lecture 24:
Linear Transformations III (unit?unit=38&lesson=45)

Lecture 25:
Orthonormal Basis, Geometry in R^2 I (unit?unit=38&lesson=46)

Lecture 26:
Orthonormal Basis, Geometry in R^2 II (unit?unit=38&lesson=47)

Lecture 27:
Orthonormal Basis, Geometry in R^2 III (unit?unit=38&lesson=48)

Weekly Feedback (unit?unit=38&lesson=78)

Download Videos (unit?unit=38&lesson=87)

Quiz:
Assignment 5 - Objective (assessment?name=93)

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Assignment 5 - Subjective: Solutions (unit?unit=38&lesson=101)

Week 6

Week 7

Week 8