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Unit 10 - Week 8

Assignment 8 - Objective

The due date for submitting this assignment has passed. Due on 2020-04-22, 23:59 IST.
As per our records you have not submitted this assignment.

1) State whether True or False. ***1 point***

Let $C[0,1]$ be the space of all continuous real valued functions on $[0,1]$. For any continuous function $K:[0,1]\times[0,1]\to\mathbb{R}$, the map $T_K : C[0,1]\to C[0,1]$ defined as

$T_K(f)(x)=\int_0^1 K(x,y)f(y)\,dy, \quad x\in[0,1],$

is a linear map.

- True
- False

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

2) Let V be an inner product space and $\{u,v\}$ be an orthonormal set. Then for any $lambda\in[0,1]$, which of the following is an orthonormal set? ***1 point***

- $\{\sqrt{1-\lambda}u+\sqrt{\lambda}v, \sqrt{1-\lambda}u-\sqrt{\lambda}v\}$
- $\{(1-\lambda)u+\lambda v, (1-\lambda)u-lambdav\}$
- $\{\sqrt{1-\lambda}u+\sqrt{\lambda}v, \sqrt{1-\lambda}v-\sqrt{\lambda}u\}$
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\{\sqrt{1-\lambda}u + \sqrt{\lambda}v, \sqrt{1-\lambda}v - \sqrt{\lambda}u\}$

3) State whether True of False. ***1 point***

Any one-one linear map from $C[0, 1]$ to itself is also onto.

- True
- False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

4) State whether True or False. ***1 point***

For every abstract nonzero vector space V over $\mathbb{R}$, there exists a function $\langle \cdot, \cdot \rangle : V \times V \to \mathbb{R}$ such that $(V, \langle \cdot, \cdot \rangle)$ is an inner product space.

- True
- False

No, the answer is incorrect.
Score: 0

Accepted Answers:
True