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Unit 10 - Week 8

Course outline

How does an NPTEL online course work?

Week 0 - Welcome to the course!

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

- Lecture 37 : Abstract Vector Spaces I (unit? unit=56&lesson=60)

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 $K : [0, 1] \times [0, 1] \rightarrow \mathbb{R}$, the map $T_K : C[0, 1] \rightarrow C[0, 1]$ 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

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

No, the answer is incorrect.

Score: 0

- Lecture 38 :
Abstract Vector
Spaces II (unit?
unit=56&lesson=61)
- Lecture 39 :
Abstract Vector
Spaces III (unit?
unit=56&lesson=62)
- Lecture 40 :
Inner Product
Spaces (unit?
unit=56&lesson=63)
- Lecture 41 :
Inner Product
Spaces II (unit?
unit=56&lesson=64)
- Weekly
Feedback (unit?
unit=56&lesson=81)
- Download
Videos (unit?
unit=56&lesson=90)
- Quiz :
**Assignment 8 -
Objective
(assessment?
name=97)**

Accepted Answers:

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

3) State whether True or False.

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

- True
 False

No, the answer is incorrect.

Score: 0

Accepted Answers:

True