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Unit 8 - Week 6

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

- [Lecture 28 : Isometries, Eigenvalues and Eigenvectors I \(unit? unit=42&lesson=50\)](#)

- [Lecture 29 : Isometries, Eigenvalues and](#)

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.

1 point

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.

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

2) State whether True or False.

1 point

Let $A = \begin{bmatrix} u & v & w \end{bmatrix}$ be a 3×3 real orthogonal matrix, where $u, v, w \in \mathbb{R}^3$ are column vectors. Then $u + v$ is orthogonal to $v + w$.

- True
 False

No, the answer is incorrect.
Score: 0

Accepted Answers:
False

3) State whether True or False.

1 point

Let A be a 3×3 matrix such that $\det A > 0$. Then the linear map defined by A is an isometry.

Eigenvectors II
(unit?
unit=42&lesson=51)

- Lecture 30 :
Isometries,
Eigenvalues and
Eigenvectors III
(unit?
unit=42&lesson=52)
- Lecture 31 :
Diagonalization
and Real
Symmetric
Matrices I (unit?
unit=42&lesson=53)
- Lecture 32 :
Diagonalization
and Real
Symmetric
Matrices II (unit?
unit=42&lesson=54)
- Lecture 33 :
Diagonalization
and Real
Symmetric
Matrices III
(unit?
unit=42&lesson=55)
- Weekly
Feedback (unit?
unit=42&lesson=79)
- Download
Videos (unit?
unit=42&lesson=86)
- Quiz :
**Assignment 6 -
Objective
(assessment?
name=95)**

Week 7

Week 8

- True
- False

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

4) State whether True or False.

1 point

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:
True

