

X

NPTEL

reviewer4@nptel.iitm.ac.in ▼

Courses » Engineering Mathematics - I

Announcements

Course

Ask a Question

Progress

FAQ

Unit 11 - Week 9 :

Register for
Certification exam

Course outline

How to access the
portal

Week 0 :

Week 1 :

Week 2 :

Week 3 :

Week 4 :

Week 5 :

Week 6 :

Week 7 :

Week 8 :

Week 9 :

● Lecture 41 : Vector
Spaces –Spanning
Set

● Lecture 42 : Vector
Spaces –Basis and
Dimension

● Lecture 43 : Rank
of a Matrix

● Lecture 44 : Linear
Transformations

● Lecture 45 : Linear
Transformations
(cont.)

○ Quiz : Assignment
9

○ Feedback for Week
9

Week 10 :

Assignment 9

The due date for submitting this assignment has passed.

Due on 2019-04-03, 23:59 IST

As per our records you have not submitted this assignment.

1)

1 point

Let $S = \{\alpha, \beta, \gamma\}$, $T = \{\alpha, \beta, \alpha + \beta, \beta + \gamma\}$ be subsets of a real vector space V . Then which of the following options hold(s) true?

- $SPAN(S) = SPAN(T)$
- $SPAN(S) \neq SPAN(T)$
- if S spans V , then T spans V
- if T spans V , then S spans V

- a.
 b.
 c.
 d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

- a.
c.
d.

2)

1 point

Let $\alpha_1, \alpha_2, \alpha_3$ and α_4 are vectors in a real vector space V such that $c_1\alpha_1 + c_2\alpha_2 + c_3\alpha_3 + c_4\alpha_4 = 0$, where c_1, c_2, c_3, c_4 are real numbers with $c_1c_4 \neq 0$. Then which of the following options hold(s) true?

- $\{\alpha_1, \alpha_2, \alpha_3, \alpha_4\}$ is a linearly independent set
- $SPAN(\alpha_1, \alpha_2, \alpha_3, \alpha_4) = SPAN(\alpha_2, \alpha_3, \alpha_4)$
- $SPAN(\alpha_1, \alpha_2, \alpha_3, \alpha_4) = SPAN(\alpha_1, \alpha_2, \alpha_3)$
- $SPAN(\alpha_2, \alpha_3, \alpha_4) \neq SPAN(\alpha_1, \alpha_2, \alpha_3)$

- a.
 b.
 c.
 d.

No, the answer is incorrect.

© 2014 NPTEL - Privacy & Terms - Honor Code - FAQs -

A project of



NPTEL

National Programme on
Technology Enhanced Learning

In association with

NASSCOM®

Funded by

Government of India
Ministry of Human Resource Development

Powered by

Assignment
Solution

If $S = \{(k, 1, k), (0, k, 1), (1, 1, 1)\}$ is a basis of \mathbb{R}^3 , then $k \neq$ _____.

- a. 0
- b. 1
- c. -1
- d. -2

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

4)

1 point

Let V be a vector space with a basis $\{\alpha_1, \alpha_2, \dots, \alpha_n\}$. Then $\{\alpha_1 + \alpha_2, \alpha_2 + \alpha_3, \dots, \alpha_n + \alpha_1\}$ is a basis of V if n is _____.

- a. divisible by 4
- b. even
- c. odd
- d. 6

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

c.

5)

1 point

Which of the following options is/are true for a non-singular matrix A of order 4?

- a. $\text{Rank}(A^{-1}) = 4$
- b. $\text{Rank}(A^3) = 3$
- c. $\text{Rank}(2A) = 2$
- d. $\text{Rank}(\text{adj}(A)) = 4$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

a.

d.

6)

1 point

Let $A = \begin{pmatrix} 1 & 1 & 1 & 1 \\ 1 & 2 & -1 & \lambda \\ 5 & 7 & 1 & \lambda^2 \end{pmatrix}$, $\lambda \in \mathbb{R}$. Then rank of A is 2 if $\lambda = \underline{\hspace{2cm}}$.

- a. 1, 3
- b. -1, 3
- c. 1, -3
- d. -1, -3

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

7)

1 point

Let S be the set of all 2×2 real symmetric matrices. Then which of the following options is true?

- a. dimension of S is 2
- b. dimension of S is 3
- c. basis of S is $\left\{ \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix}, \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix} \right\}$
- d. basis of S is $\left\{ \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 1 \\ 1 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix} \right\}$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

d.

8)

1 point

The dimension of $S = \{(x, y, z, w) \in \mathbb{R}^4 : x + 2y - z + 3w = 0, -2x + y + 2z + 4w = 0\}$

- a. 1
- b. 2
- c. 3
- d. 4

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b.

9)

1 point

Let $T: \mathbb{R}^3 \rightarrow \mathbb{R}^4$ be defined as $T(x_1, x_2, x_3) = (x_2 + x_3, x_3 + x_1, x_1 + x_2, x_1 + x_2 + x_3)$, $(x_1, x_2, x_3) \in \mathbb{R}^3$. Then which of the following options is/are true?

- a. T is a linear transformation
- b. $\text{Rank}(T) = 3$
- c. $\text{Nullity}(T) = 1$
- d. $\text{Rank}(T) + \text{Nullity}(T) = 4$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

- a.
- b.

10)

1 point

Let $T: \mathbb{R}^2 \rightarrow \mathbb{R}^3$ be a linear transformation defined in such a way that $T(1,1) = (3,0,1)$ and $T(2,3) = (-1,2,0)$. Then $T(x,y) =$ _____.

- a. $(3x - 2y, 4y, -2x + 3y)$
- b. $(-2y, -2x + 2y, 3x - 2y)$
- c. $(10x - 7y, -2x + 2y, 3x - 2y)$
- d. $(7x - 10y, 2x - 2y, -2x + 3y)$

- a.
- b.
- c.
- d.

No, the answer is incorrect.

Score: 0

Accepted Answers:

- c.

Previous Page

End