

X


<https://swayam.gov.in>

https://swayam.gov.in/nc_details/NPTEL

reviewer4@nptel.iitm.ac.in ✓

NPTEL (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » **Data Science for Engineers (course)**

 Announcements (announcements) **About the Course** (https://swayam.gov.in/nd1_noc20_cs28/preview)

Ask a Question (forum) Progress (student/home) Mentor (student/mentor)

Unit 4 - Week 2

Course outline

How does an NPTEL online course work?

Week 0

Week 1

Week 2

☒ Linear Algebra for Data science (unit? unit=14&lesson=15)

☐ Solving Linear Equations (unit? unit=14&lesson=16)

☐ Solving Linear Equations (Continued) (unit? unit=14&lesson=17)

☐ Linear Algebra - Distance, Hyperplanes and Halfspaces, Eigenvalues, Eigenvectors (unit? unit=14&lesson=18)

☐ Linear Algebra - Distance, Hyperplanes

Linear algebra - Assignment 2 - Part 2

The due date for submitting this assignment has passed. **Due on 2020-02-12, 23:59 IST.**
As per our records you have not submitted this assignment.

1) The distance between two vectors say $V_1 = [15 \ 16 \ 2]^T$ and $V_2 = [18 \ 16 \ 1]^T$ is **1 point**

- ☐ $\sqrt{3}$ units
☐ $\sqrt{10}$ units
☐ $2\sqrt{3}$ units
☐ $\sqrt{21}$ units

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $\sqrt{10}$ units

2) The unit vector of a vector $[5 \ 8]^T$ is **1 point**

☐
$$\begin{bmatrix} 5/\sqrt{89} \\ 2/\sqrt{9} \end{bmatrix}$$

☐
$$\begin{bmatrix} 5/\sqrt{13} \\ 8/\sqrt{13} \end{bmatrix}$$

☐
$$\begin{bmatrix} 29/\sqrt{5} \\ 29/\sqrt{2} \end{bmatrix}$$

☐

and Halfspaces,Eigenvalues,Eigenvectors (Continued 1) (unit? unit=14&lesson=19)	$\begin{bmatrix} 5/\sqrt{89} \\ 8/\sqrt{89} \end{bmatrix}$ <p>No, the answer is incorrect. Score: 0</p> <p>Accepted Answers:</p> $\begin{bmatrix} 5/\sqrt{89} \\ 8/\sqrt{89} \end{bmatrix}$	
<input checked="" type="radio"/> Linear Algebra - Distance,Hyperplanes and Halfspaces,Eigenvalues,Eigenvectors (Continued 2) (unit? unit=14&lesson=20)	<p>3) Two vectors are said to be orthogonal when their dot product is</p> <p> <input type="radio"/> 0 <input type="radio"/> 1 <input type="radio"/> ∞ <input type="radio"/> Not defined </p> <p>No, the answer is incorrect. Score: 0</p> <p>Accepted Answers:</p> <p>0</p>	1 point
<input checked="" type="radio"/> Linear Algebra - Distance,Hyperplanes and Halfspaces,Eigenvalues,Eigenvectors (Continued 3) (unit? unit=14&lesson=21)	<p>No, the answer is incorrect. Score: 0</p> <p>Accepted Answers:</p> <p>0</p>	
<input type="radio"/> FAQ (unit? unit=14&lesson=22)	<p>4) Which of the following sets of vector is/are orthogonal</p> <p> <i>I.</i> $v_1 = (5 \ -2 \ 3)^T$ $v_2 = (-2 \ 4 \ 6)$ <i>II.</i> $v_1 = (1 \ -2 \ 4)$, $v_2 = (2 \ 5 \ 2)^T$ <i>III.</i> $v_1 = (1 \ -2 \ 4)^T$, $v_2 = (-1 \ 4)^T$ <i>IV.</i> $v_1 = (14 \ 5)$, $v_2 = (10 \ -2)^T$ </p> <p> <input type="radio"/> I <input type="radio"/> I, II <input type="radio"/> I, II , III <input type="radio"/> III, IV </p> <p>No, the answer is incorrect. Score: 0</p> <p>Accepted Answers:</p> <p>I, II</p>	1 point
<input type="radio"/> Quiz : Assignment 2 - Part 1 (assessment? name=106)		
<input type="radio"/> Quiz : Linear algebra - Assignment 2 - Part 2 (assessment? name=109)		
<input type="radio"/> Week 2 Feedback (unit? unit=14&lesson=110)		
<input checked="" type="radio"/> Solution - Assignment 2 - Part 1 (unit? unit=14&lesson=115)	<p>5) State whether the following statements are True / False</p> <p> i) All orthonormal vectors are orthogonal ii) Basis vectors are set of vectors that are dependent and span the space </p> <p> <input type="radio"/> i)- False ii) – True <input type="radio"/> i) - True ii) – True <input type="radio"/> i) – True ii) – False <input type="radio"/> i) - False ii) – False </p> <p>No, the answer is incorrect. Score: 0</p> <p>Accepted Answers:</p> <p>i) – True ii) – False</p>	1 point
<input checked="" type="radio"/> Solution - Linear algebra - Assignment 2 - Part 2 (unit? unit=14&lesson=116)		
Week 3		
Week 4		
Week 5		
Week 6		
Week 7		
Week 8	<p>6)</p> <p>The point $\begin{pmatrix} x \\ y \\ z \\ q \end{pmatrix} = \begin{pmatrix} 1 \\ 2 \\ 3 \\ 4 \end{pmatrix}$ is in _____ half space of the hyper plane</p> <p>$3x + 2y - 6z + 8q = 24$</p> <p> <input type="radio"/> Positive </p>	1 point

Text Transcripts

Download Videos

- ☐ Negative
- ☐ On the hyperplane
- ☐ Cannot be decided

No, the answer is incorrect.

Score: 0

Accepted Answers:

Negative

7) P is an $m \times n$ matrix whose columns are linearly independent. The nullity of A is

1 point

- ☐ Zero
- ☐ 1
- ☐ Not defined
- ☐ R

No, the answer is incorrect.

Score: 0

Accepted Answers:

Zero

8) A set of linear equations is represented by the matrix equation $Ax=b$. The necessary condition for the existence of a solution for the system is

1 point

- ☐ b must be linearly independent of the columns A
- ☐ A must be non invertible
- ☐ A must be invertible
- ☐ None of the above

No, the answer is incorrect.

Score: 0

Accepted Answers:

A must be invertible

9) State whether the following statements are True / False

1 point

- i) If the eigen values becomes complex, eigen vectors become real
- ii) Symmetric matrix will have real eigen values

- ☐ i) - True ii) – True
- ☐ i) – True ii) – False
- ☐ i) - False ii) – False
- ☐ i)- False ii) – True

No, the answer is incorrect.

Score: 0


Accepted Answers:

i)- False ii) – True

10) If the projection of \vec{a} on \vec{b} and projection of \vec{b} on \vec{a} are equal then the angle between $\vec{a} + \vec{b}$ and $\vec{a} - \vec{b}$ is

1 point

- ☐ $\frac{\pi}{2}$
- ☐ $\frac{\pi}{3}$
- ☐

$$\frac{\pi}{4}$$

$$\frac{2\pi}{3}$$

No, the answer is incorrect.

Score: 0

Accepted Answers:

$$\frac{\pi}{2}$$