

MTH 501 QUIZ 3 BY IQRA AZHAR

MTH501

Quiz 3

2024

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Solved by



Iqra Azhar



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CONTACT US **03235429064**

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What is the maximum possible number of pivots in a 4×6 matrix?
Select the correct option

6

10

4

8

4.

What is Eigen value?

A vector obtained from the coordinates

A scalar associated with a given linear transformation

A matrix determined from the algebraic equations

It is the inverse of the transform

scalar associated with a linear transformation.

Each pair of eigenvalue and its corresponding eigenvector provides a solution of the equation $x' = Ax$ which is called -----
---- of the differential equation. Select the correct option

Eigen functions

Eigen vectors

A partitioned matrix 'A' is said to be block diagonal if the matrices on the main diagonal are square and all other position matrices are _____.

zero

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A blocked matrix in which blocks (blocked matrices) are repeated down the diagonals of the matrix is called a _____ matrix. Select the correct option

Blocked rectangular

Blocked identity

Blocked square

Blocked diagonal-constant

Blocked diagonal-constant

For u, v vectors in R^n , the distance between u and v is written as _____ Select the correct option

None of these

$\text{dist}(u, v) = ||u - u||$

$\text{dist}(u, v) = ||v - v||$

$\text{dist}(u, v) = ||u - v||$

$\text{dist}(u, v) = ||u - v||.$

If $A = \text{transpose of } A$ (where A is a square matrix), then which of the following is the most appropriate option for A ? Select the correct option

A is symmetric matrix.

A is a scalar matrix.

A is invertible matrix.

A is singular matrix.

A is a symmetric matrix."

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Each pair of eigenvalue and its corresponding eigenvectors provides a solution of the equation $x' = Ax$ which is called Select the correct option

vector space

solution matrix

dynamical system

eigenfunctions

solution matrix.

Any set of three non-coplanar vectors $\{a, b, c\}$ in ordinary space spans the ----- space Select the correct option

R^3

R^2

R^3

The determinant of a triangular matrix is the sum of the entries of the main diagonal. Select the correct option

True

False

False

A system of linear equations is said to be homogeneous if it can be written in the form _____. Select the correct option

$AX=0$

$AX=B$

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We can add the matrices of _____. Select the correct option

different order

same order

same number of rows

same number of columns

the norm of v is the non-negative scalar $\|v\|$ defined by Select the correct option

$$\|v\| = \sqrt{v_1^2 + v_2^2 + \dots + v_n^2}$$

For a non-singular matrix A , A^{-1} is equal to-----Select the correct option

$\det(A) * \text{Adj}(A)$

$\det(A) * A$

None of the above

$\text{Adj}(A) / \det(A)^*$

Two vectors are linearly independent if at least one of the vector is a multiple of the other.

False.

Let A and B be the square matrices. Then, A and B are invertible with $B=A^{-1}$ and $A=B^{-1}$ if and only if $AB=BA$ equals to a (an) _____ matrix. Select the correct option

Rectangular

Singular

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Square

Identity

A matrix $[A]_{n \times n}$ has both positive and negative eigenvalues so in this case origin behaves as a -----Select the correct option

Saddle point

Critical point

Saddle point

Let A be the matrix of order 2×3 and B be the matrix of order 3×5 , then which of the following is the order of the matrix AB? Select the correct option

3×5

2×5

3×3

2×3

2×5

there is a vector $v = (2, 1, 0)$ then $\|v\|$ is -----Select the correct option

20

5

3

Sqrt 5

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For a real matrix A , complex Eigen values and associated Eigen vectors come in -----Select the correct option

Complex pairs

similar pairs

conjugate pairs

The complex conjugate of a complex vector x in C^n is the vector $\bar{x}$ in C^n whose entries are the ----- conjugates of the entries in x . Select the correct option

Complex

Real

What is the maximum possible number of pivots in a 6×6 matrix? Select the correct option

2

6

0

4

If we divide a non-zero vector by its length we get a

unit vector

If A is invertible and b in R^n be any vector. Then, we **must** have a matrix $A^{-1}b$, which is a solution of _____. Select the correct option

$Ax=b$

$A^2x=b$

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$$Ax=b$$

$$A^{-1}x=b$$

If the columns of a matrix are linearly independent, then the matrix is invertible. For u and v vectors in $\mathbb{R}^n$, the distance between u and v written as $\text{dist}(u,v)$ is the length of the vector-----
Select the correct option

$$v-u$$

$$u-v$$

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Websites

Vucorner.com

WhatsApp

03235429064

 **Allah Hafiz** 