Time left 0:01:47

Question 19

Not yet answered

Marked out of 2.50

Flag question

If $A=\begin{pmatrix} -1 & 4 \\ 3 & 1 \end{pmatrix}$, $B=\begin{pmatrix} 2 & 3 \\ 1 & 0 \end{pmatrix}$, and $C = B^T \times A$, then $c_{21} =$

- A. 1
- B. -1
- C. 9
- D. 12
- E. -3

Clear my choice

Next page

Question 2

Not yet answered

Marked out of 2.50

Flag question

Let A and B be two 7×7 matrices such that $\mathrm{rk}(A) = 2$ and $\mathrm{rk}(B) = 3$. Which of the following COULD be true?

I. $\mathrm{rk}(A+B) = 0$

II. $\mathrm{rk}(A+B) = 1$

III. $\mathrm{rk}(A+B) = 6$

- A. I and II
- B. I, II and III
- C. I only
- D. None
- E. II only

Clear my choice

Time left 0:49:29

Question 2

Not yet answered

Marked out of 2.50

Flag question

Let A and B be two 7×7 matrices such that $\mathrm{rk}(A) = 2$ and $\mathrm{rk}(B) = 3$. Which of the following COULD be true?

I. $\mathrm{rk}(A+B) = 0$
II. $\mathrm{rk}(A+B) = 1$
III. $\mathrm{rk}(A+B) = 6$

- A. I and II
- B. I, II and III
- C. I only
- D. None
- E. II only

Clear my choice

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◀ Midterm Exam

PRINCIPLES OF LINEAR ALGEBRA

General | Final Exam

Time left 0:57:34

Question 1

Not yet answered

Marked out of 2.50

Flag question

Let $A = [0\ 1\ 0\ 0]$, A^{-1} is equal to _____

- A. None of the mentioned
- B. Does not exist
- C. Identity matrix
- D. Null matrix

Clear my choice

Next page

Time left 0:46:27

Question 4

Not yet answered

Marked out of 2.50

Flag question

The dot product of two vectors $\vec{A}$ and $\vec{B}$

$\vec{A} = 3i + 5j + 7k$

$\vec{B} = 11i + 13j + 17k$

most nearly is

- A. 33
- B. 217
- C. 14.8
- D. 56

Clear my choice

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Previous activity

◀ Midterm Exam

Not yet answered

Marked out of 2.50

Flag question

Let $\{a, b\}$ and $\{c, d\}$ be two sets of vectors, both linearly independent. Which of the following MUST be true?

I. $\{a, b, c, d\}$ is also linearly independent.

II. Both $\{a, c\}$ and $\{b, d\}$ are linearly independent

III. Either $\{a, c\}$ or $\{b, d\}$ is linearly independent

- A. III
- B. All are true
- C. II
- D. Neither is true
- E. I

Clear my choice

Next page

estion 5

t yet answered

rked out of 2.50

Flag question

hich of the following could be the set of eigenvalues of $\begin{pmatrix} -2 & -4 & -4 \\ 2 & -2 & 2 \\ -2 & 4 & 0 \end{pmatrix}$?

A. $\lambda_1 = 2, \lambda_2 = 4, \lambda_3 = -2$

B. $\lambda_1 = 2, \lambda_2 = -4, \lambda_3 = -2$

C. $\lambda_1 = 2, \lambda_2 = 4, \lambda_3 = 2$

D. $\lambda_1 = 2, \lambda_2 = -4, \lambda_3 = 2$

Clear my choice

Time left 0:28:23

Question 9

Not yet answered

Marked out of 2.50

Flag question

The determinant $\begin{vmatrix} -1 & -12 & -8 \\ 0 & 4 & 8 \\ 0 & 8 & -8 \end{vmatrix}$ is equal to

- A. None of these
- B. 52
- C. 64
- D. 0
- E. 4

Clear my choice

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◀ Midterm Exam

Question 5

Time left 0:42:03

Not yet answered

Marked out out of 2.50

Flag question

Which of the following could be the set of eigenvalues of $\begin{pmatrix} -2 & -4 & -4 \\ 2 & -2 & 2 \\ -2 & 4 & 0 \end{pmatrix}$?

- A. $\lambda_1 = 2, \lambda_2 = 4, \lambda_3 = -2$
- B. $\lambda_1 = 2, \lambda_2 = -4, \lambda_3 = -2$
- C. $\lambda_1 = 2, \lambda_2 = 4, \lambda_3 = 2$
- D. $\lambda_1 = 2, \lambda_2 = -4, \lambda_3 = 2$

Clear my choice

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◀ Midterm Exam

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Time left 0:33:44

Flag question

The set of equations

$$\begin{bmatrix} 1 & 2 & 5 \\ 2 & 3 & 7 \\ 5 & 8 & 19 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} 18 \\ 26 \\ 70 \end{bmatrix}$$

has

- A. No solution
- B. A unique solution
- C. Finite number of solutions
- D. Infinite solutions

Clear my choice

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Previous activity

Midterm Exam

Time left 0:38:19

Question 6

Not yet answered

Marked out of 2.50

Flag question

Let A be the matrix that is inverse to $\begin{pmatrix} 6 & -5 & -2 \\ -1 & 0 & -1 \\ -2 & 2 & 1 \end{pmatrix}$. Then $a_{22} =$

- A. 1
- B. 5
- C. None of these
- D. 3
- E. 2

Clear my choice

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◀ Midterm Exam

Question 8

Not yet answered

Time left 0:30:40

Marked out of 2.50

Flag question

Which, if any, of these matrices have an LU decomposition?

A. $\begin{bmatrix} 1 & -3 & 7 \\ -2 & 6 & 1 \\ 0 & 3 & -2 \end{bmatrix}$.

B. None

C. $\begin{bmatrix} 3 & 2 \\ 0 & 1 \end{bmatrix}$

D. $\begin{bmatrix} 0 & 1 \\ 3 & 2 \end{bmatrix}$

Clear my choice

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Question 11

Not yet answered

Marked out of 2.50

Flag question

Time left 0:21:14

Let A be a 3×3 matrix and let $B=\begin{pmatrix}5&0&0\\0&1&0\\0&0&1\end{pmatrix}$. If A is multiplied by B from the left then

- A. The 1st column of A is multiplied by 5
- B. None of these
- C. The 1st column of A is divided by 5
- D. The 1st row of A is multiplied by 5
- E. The 1st row of A is divided by 5

Clear my choice

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Midterm Exam

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Question 10

Not yet answered

Marked out of 2.50

Flag question

The eigenvalues of a 4×4 matrix $[A]$ are given as 2,−3.13, and 7. The $|\det(A)|$ then is

- A. 546
- B. 19
- C. Can not be determined
- D. 25

Clear my choice

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Midterm Exam

Time left 0:13:58

Question 12

Not yet answered

Marked out of 2.50

Flag question

Let A, B, and C be square matrices such that $A \cdot B = E$ and $B \cdot C = E$, where E is the identity matrix. Which of the following MUST be true?

I. $\det(A) = \det(C)$

II. $A = C$

III. If $A = B$ then $|\det(A)| = 1$

- A. I
- B. I and II
- C. II
- D. I, II and III
- E. III

Clear my choice

Time left 0:07:37

Question 15

Not yet answered

Marked out of 2.50

Flag question

Consider there are only two computer companies in a country. The companies are named *Dude* and *Imac*. Each year, company *Dude* keeps $1/5^{th}$ of its customers, while the rest switch to *Imac*. Each year, *Imac* keeps $1/3^{rd}$ of its customers, while the rest switch to *Dude*. If in *2003*, *Dude* had $1/6^{th}$ of the market and *Imac* had $5/6^{th}$ of the market, what will be share of *Dude* computers when the market becomes stable?

- A. 6/11
- B. 53/90
- C. 37/90
- D. 5/11

Clear my choice

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Midterm Exam

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Question 13

Not yet answered

Marked out of 2.50

Flag question

Let A be a 3×4 matrix and B be a 4×5 matrix. $\mathrm{rk}(A\cdot B)$ is not greater than

- A. Could be any number
- B. 4
- C. 5
- D. 3
- E. 0

Clear my choice

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Previous activity

Time left 0:08:33

Question 14

Not yet answered

Marked out of 2.50

Flag question

If $\begin{bmatrix} -4.5 \\ -4 \\ 1 \end{bmatrix}$ is an eigenvector of $\begin{bmatrix} 8 & -4 & 2 \\ 4 & 0 & 2 \\ 0 & -2 & -4 \end{bmatrix}$, the eigenvalue corresponding to the eigenvector is

- A. 4
- B. 1
- C. -4.5
- D. 6

Clear my choice

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◀ Midterm Exam

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Time left 0:04:23

The lower triangular matrix [L] in the [

$$\begin{bmatrix} 25 & 5 & 4 \\ 10 & 8 & 16 \\ 8 & 12 & 22 \end{bmatrix} \quad \begin{bmatrix} 1 & 0 & 0 \\ \ell_{21} & 1 & 0 \\ \ell_{31} & \ell_{32} & 1 \end{bmatrix} \begin{bmatrix} u_{11} & u_{12} & u_{13} \\ 0 & u_{22} & u_{23} \\ 0 & 0 & u_{33} \end{bmatrix}$$

is

A. $\begin{bmatrix} 1 & 0 & 0 \\ 0.40000 & 1 & 0 \\ 0.32000 & 1.5000 & 1 \end{bmatrix}$

B. $\begin{bmatrix} 1 & 0 & 0 \\ 10 & 1 & 0 \\ 8 & 12 & 0 \end{bmatrix}$

C. $\begin{bmatrix} 25 & 5 & 4 \\ 0 & 6 & 14.400 \\ 0 & 0 & -4.2400 \end{bmatrix}$

D. $\begin{bmatrix} 1 & 0 & 0 \\ 0.40000 & 1 & 0 \\ 0.32000 & 1.7333 & 1 \end{bmatrix}$

Clear my choice

Question 18

Time left 0:03:12

Not yet answered

Marked out of 2.50

Flag question

Let A be a 3×3 matrix with eigenvalues λ_1, λ_2, and λ_3 such that $\lambda_1 \neq \lambda_2$, $\lambda_1 \neq \lambda_3$, and $\lambda_2 \neq \lambda_3$. Which of the following MUST be true?

I If a and b are eigenvectors corresponding to λ_1 then the set $\{a, b\}$ is linearly dependent

II. If a_1 and a_2 are eigenvectors corresponding to λ_1 and λ_2, respectively, then $\{a_1, a_2\}$ is linearly independent

III. $\det(A) \neq 0$

- A. I
- B. III
- C. I and II
- D. II
- E. II and III

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Question 16

Not yet answered

Marked out of 2.50

Flag question

Let A be a 3×3 matrix whose characteristic polynomial $f(\lambda) = 1 + \lambda - \lambda^2 - \lambda^3$. Which of the following MUST be true?

I. $\mathrm{rk}(A - \lambda E) = 3$ for some λ

II. A^{-1} exists

III. A is NOT diagonalizable

A. II

B. I

C. I, II, and III

D. I and II

E. II and III

Clear my choice

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