X

Week 2: Assignment 2

The due date for submitting this assignment has passed.

Due on 2021-08-18, 23:59 IST.

Assignment submitted on 2021-08-15, 19:18 IST

Consider a data matrix, 'M' which comprises the information of 150 cricket players which includes player's jersey number, number of matches played, total runs, average, highest score, number of 100's, and number of 50's.

Using the above information answer the questions 1 & 2

1) What would be the size of the matrix '**M**'? ***1 point***

- 7x150
- 150x7
- 150x8
- 700x7

Yes, the answer is correct.
Score: 1

Accepted Answers:
150x7

2) Rank of the matrix 'M' is 3 then what would be the nullity (number of equations) for the matrix '**M**'? ***1 point***

- 7
- 2.5
- 4
- 3

Yes, the answer is correct.
Score: 1

Accepted Answers:

4

3) Rank of the matrix, $A = \begin{bmatrix} 1 & 4 & 3 & 5 & 6 \\ 2 & 5 & 0 & 5 & 1 \\ 8 & 6 & 5 & 1 & 0 \\ 2 & 8 & 6 & 10 & 12 \\ 9 & 7 & 6 & 5 & 1 \end{bmatrix}$ is _____

4

Yes, the answer is correct.
Score: 1

Accepted Answers:
(Type: Numeric) 4

1 point

Consider the given matrix, $D = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 2 & 0 \\ 0 & 0 & 3 \end{bmatrix}$ and answer the questions 4 & 5

4) Eigen values of the given matrix D is ***1 point***

- 0,1,2
- 3,2,1
- 2,3,0
- None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
3,2,1

5) Eigen vectors of the given matrix D is ***1 point***

- $\begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}$
- $\begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}, \begin{bmatrix} 1 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$
- $\begin{bmatrix} 0 \\ 0 \\ 1 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \\ 0 \end{bmatrix}, \begin{bmatrix} 1 \\ 0 \\ 0 \end{bmatrix}$
- $\begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 0 \\ 1 \\ 1 \end{bmatrix}, \begin{bmatrix} 1 \\ 0 \\ 1 \end{bmatrix}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$\begin{bmatrix}0\\0\\1\end{bmatrix}, \begin{bmatrix}0\\1\\0\end{bmatrix}, \begin{bmatrix}1\\0\\0\end{bmatrix}$

6) The product of roots of characteristic equation of a square matrix $\boldsymbol{A}$ is equal to ***1 point***

- |A|
- Rank of A
- A^{-1}
- None of the above

Yes, the answer is correct.
Score: 1

Accepted Answers:
|A|

7) Which of the following vector(s) is / are orthogonal? ***1 point***

- $V1 = (1\ 8\ 4)^T$, $V2 = (6\ 7\ -8)^T$
- $V1 = (1\ 4\ -2)^T$, $V2 = (12\ -2\ 2)^T$
- $V1 = (6\ 4\ -2)^T$, $V2 = (1\ 4\ -1)^T$
- $V1 = (-2\ 6\ 1)^T$, $V2 = (4\ 1\ 2)^T$

No, the answer is incorrect.
Score: 0

Accepted Answers:
$V1 = (1\ 4\ -2)^T$, $V2 = (12\ -2\ 2)^T$
$V1 = (-2\ 6\ 1)^T$, $V2 = (4\ 1\ 2)^T$

8) If $\boldsymbol{A}$ and $\boldsymbol{B}$ are any two square matrices of SAME dimensions such that $\boldsymbol{AB} = \boldsymbol{0}$ and if $\boldsymbol{A}$ is non-singular, then ***0 points***

- B=0
- B is singular
- B is non-singular
- B=A

Yes, the answer is correct.
Score: 0

Accepted Answers:
B is singular

9) The point $\begin{pmatrix}x_1\\x_2\\x_3\\x_4\end{pmatrix} = \begin{pmatrix}1\\4\\6\\3\end{pmatrix}$ is in _____ half space of the hyper plane $x_1 - 9x_2 + 3x_3 + 2x_4 = 8$ ***1 point***

- Positive
- Negative
- On a plane
- Cannot be determined

No, the answer is incorrect.
Score: 0

Accepted Answers:
Negative

10) The trace of a matrix A can be found by **1 point**

- [x] Sum of its eigenvalues
- [x] Sum of its diagonals
- [ ] Determinant
- [ ] None of the above

Yes, the answer is correct.
Score: 1

Accepted Answers:
Sum of its eigenvalues
Sum of its diagonals