love/loves/Derek/Kate/very/much. Arrange these words into a meaningful sentence.

Options :

6406532238232. ✔ Derek loves Kate very much

6406532238233. ✖ Kate love Derek very much

6406532238234. ✖ Derek very much love Kate

6406532238235. ✖ Derek very much Kate love

Sem2 Maths2

Section Id :	64065344876
Section Number :	6
Section type :	Online
Mandatory or Optional :	Mandatory
Number of Questions :	8
Number of Questions to be attempted :	8
Section Marks :	25
Display Number Panel :	Yes
Section Negative Marks :	0
Group All Questions :	No
Enable Mark as Answered Mark for Review and Clear Response :	Yes
Maximum Instruction Time :	0
Sub-Section Number :	1
Sub-Section Id :	64065395003
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Number : 130 Question Id : 640653667941 Question Type : MCQ Is Question

Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 0

Question Label : Multiple Choice Question

THIS IS QUESTION PAPER FOR THE SUBJECT "FOUNDATION LEVEL : SEMESTER II: MATHEMATICS FOR DATA SCIENCE II (COMPUTER BASED EXAM)"

ARE YOU SURE YOU HAVE TO WRITE EXAM FOR THIS SUBJECT?

CROSS CHECK YOUR HALL TICKET TO CONFIRM THE SUBJECTS TO BE WRITTEN.

(IF IT IS NOT THE CORRECT SUBJECT, PLS CHECK THE SECTION AT THE TOP FOR THE SUBJECTS REGISTERED BY YOU)

Options :

6406532238236. ✔ YES

6406532238237. ✖ NO

Sub-Section Number :	2
Sub-Section Id :	64065395004
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653667942 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (131 to 133)

Question Label : Comprehension

Consider the system of linear equations $x + ky = 2$, $kx + y = 2$.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 131 Question Id : 640653667943 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Find the values of k for which the system of equations has no solution.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

-1

Question Number : 132 Question Id : 640653667944 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Find the values of k for which the system of equations has infinitely many solutions.

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 133 Question Id : 640653667945 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2

Question Label : Short Answer Question

If the system has a unique solution (a, b), what is $a - b$?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

0

Question Id : 640653667955 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (134 to 135)

Question Label : Comprehension

Let $W_1 = \{(x, y, z) \in \mathbb{R}^3 : 2x - y + z = 0\}$ and
$W_2 = \{(x, y, z) \in \mathbb{R}^3 : 2x - y + z = 0, 2x + y - 3z = 0\}$
and W_3 be the xy-plane.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 134 Question Id : 640653667956 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Choose the correct option(s) from the following statements.

Options :

6406532238254. ✔ The set $\{(1, 0, -2), (0, 1, 1)\}$ forms a basis for W_1.

6406532238255. ✖ W_2 is the set of all solutions of the system $AX = 0$ where

$$A = \begin{pmatrix} 2 & 2 \\ -1 & 1 \\ 1 & -3 \end{pmatrix}$$

6406532238256. ✔ The intersection of W_1 and W_3 is the line $y = 2x$.

6406532238257. ✖ The intersection of W_1 and W_3 is spanned by the vector $(2, 1, 0)$.

6406532238258. ✔ W_2 is the straight line in $\mathbb{R}^3$ passing through the origin and the vector $(1, 4, 2)$.

Question Number : 135 Question Id : 640653667957 Question Type : SA Calculator : None

Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Find dim(W_1 +W_2).

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

Sub-Section Number : 3

Sub-Section Id : 64065395005

Question Shuffling Allowed : Yes

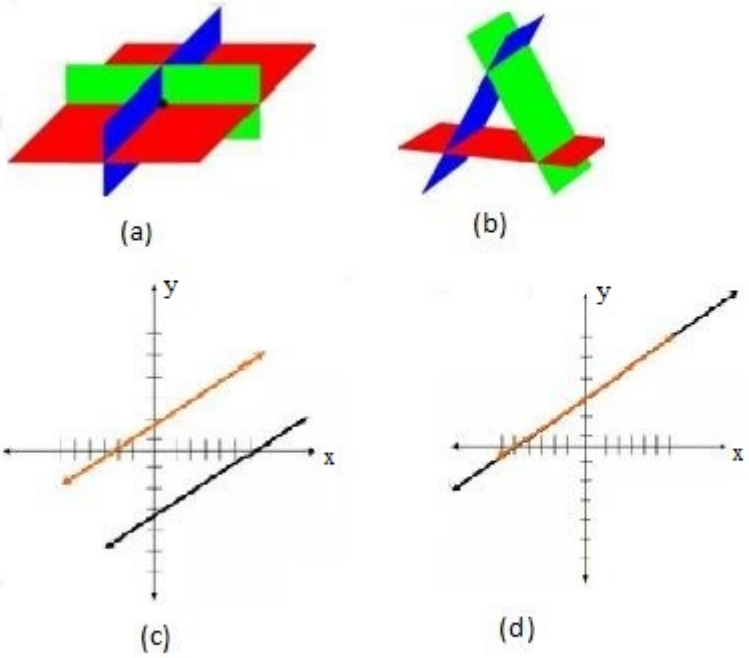
Is Section Default? : null

Question Number : 136 Question Id : 640653667946 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 2 Max. Selectable Options : 0

Question Label : Multiple Select Question

Consider the following images representing systems of linear equations.



Choose the correct option(s) from the following statements.

Options :

6406532238241. ✖ The figures (a) and (d) represent systems with unique solution.

6406532238242. ✔ The figures (b) and (c) represent systems with no solution.

6406532238243. ✖ The figures (b) and (d) represent systems with infinitely many solutions.

6406532238244. ✔ The figures (a) and (d) represent consistent systems of linear equations.

Sub-Section Number : 4

Sub-Section Id : 64065395006

Question Shuffling Allowed : No

Is Section Default? : null

Question Id : 640653667947 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (137 to 139)

Question Label : Comprehension

Select the correct answers for the given subquestions.

Sub questions

Question Number : 137 Question Id : 640653667948 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Let A be a 3×3 matrix such that $A^T = -A$. Then $det(A)$ =

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

0

Question Number : 138 Question Id : 640653667949 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Let A be a 3×3 matrix such that $det(A) = 2$. If B is a matrix obtained from A by swapping the second and third row, and then multiplying the first row by -3, then $det(B)$ =

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

6

Question Number : 139 Question Id : 640653667950 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Let $A = \begin{pmatrix} 1 & -2 \\ -3 & 4 \end{pmatrix}$ and

$det(A - xI) = x^2 - ax + b,$

then $a - b =$

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

7

Question Id : 640653667951 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (140 to 142)

Question Label : Comprehension

Let $W = \{A \in \mathbb{R}^{2\times 2} : A = -A^T\}.$

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 140 Question Id : 640653667952 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

Let $A \in W$ be a non-zero matrix.

Then rank of A is

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

2

Question Number : 141 Question Id : 640653667953 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

What is the dimension of the vector space *W*?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

1

Question Number : 142 Question Id : 640653667954 Question Type : MCQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Multiple Choice Question

Which of the following sets form a basis for *W*?

Options :

6406532238250. ✖ $S = \left\{ \begin{pmatrix} 1 & 0 \\ 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 \\ 0 & 1 \end{pmatrix}, \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix} \right\}$

6406532238251. ✖ $S = \left\{ \begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 \\ -1 & 0 \end{pmatrix} \right\}$

6406532238252. ✔ $S = \left\{ \begin{pmatrix} 0 & 1 \\ -1 & 0 \end{pmatrix} \right\}$

6406532238253. ✖ $S = \left\{ \begin{pmatrix} 0 & 1 \\ 0 & 0 \end{pmatrix}, \begin{pmatrix} 0 & 0 \\ 1 & 0 \end{pmatrix} \right\}$

Sub-Section Number :	5
Sub-Section Id :	64065395007
Question Shuffling Allowed :	No
Is Section Default? :	null

Question Id : 640653667958 Question Type : COMPREHENSION Sub Question Shuffling Allowed : No Group Comprehension Questions : No Question Pattern Type : NonMatrix Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Question Numbers : (143 to 145)

Question Label : Comprehension

Let $A = \begin{pmatrix} 1 & 2 & -1 \\ -1 & 1 & 0 \\ 0 & 1 & -1 \end{pmatrix}$ and $B = \begin{pmatrix} -6 & 3 & 4 \\ 7 & 2 & -1 \\ 2 & 4 & 2 \end{pmatrix}$.

Based on the above data, answer the given subquestions.

Sub questions

Question Number : 143 Question Id : 640653667959 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

What is the rank of A?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

3

Question Number : 144 Question Id : 640653667960 Question Type : SA Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 1

Question Label : Short Answer Question

What is the determinant of B?

Response Type : Numeric

Evaluation Required For SA : Yes

Show Word Count : Yes

Answers Type : Equal

Text Areas : PlainText

Possible Answers :

0

Question Number : 145 Question Id : 640653667961 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 3 Max. Selectable Options : 0

Question Label : Multiple Select Question

Let v_1, v_2 and v_3 be the column vectors of A and let u_1, u_2 and u_3 be the column vectors of B.

Choose the correct option(s) from the following statements.

Options :

6406532238262. ✖ The vectors v_1, v_2 and v_3 lie on a plane.

6406532238263. ✔ The vectors u_1, u_2 and u_3 lie on a plane.

6406532238264. ✖ The vectors u_1, u_2 and u_3 are linearly independent.

6406532238265. ✔ The system $Ax = 0$ has a unique solution.

6406532238266. ✖ The system $Bx = 0$ has no solution.

6406532238267. ✔ The vector u_3 is a linear combination of u_1 and u_2.

Sub-Section Number :	6
Sub-Section Id :	64065395008
Question Shuffling Allowed :	Yes
Is Section Default? :	null

Question Number : 146 Question Id : 640653667962 Question Type : MSQ Is Question Mandatory : No Calculator : None Response Time : N.A Think Time : N.A Minimum Instruction Time : 0

Correct Marks : 4 Max. Selectable Options : 0

Question Label : Multiple Select Question

Unless otherwise stated, assume that we consider the usual vector addition and scalar multiplication. Choose the correct option(s) from the following statements.

Options :

6406532238268. ✖ The set of vectors $\{(a,b) \in \mathbb{R}^2\}$ with scalar multiplication defined by $k(a,b) = (0,kb)$ forms a vector space.

6406532238269. ✖ The set of real numbers with addition defined by $x + y := x - y$ forms a vector space.

6406532238270. ✔ Let $A \in \mathbb{R}^{3\times 3}$ be an invertible matrix. The set of all solutions of the homogeneous system $AX = 0$ is a vector space of dimension 0.

6406532238271. ✔ Any vector subspace of $\mathbb{R}^2$ with dimension 1 is of the form $ax+by = 0$ where $a \neq 0$ or $b \neq 0$.

6406532238272. ✖ Any vector subspace of $\mathbb{R}^3$ with dimension 1 is of the form $ax+by = c$ where $a \neq 0$ or $b \neq 0$.

6406532238273. ✔ $V = \left\{ \begin{pmatrix} a & b \\ c & d \end{pmatrix} : a+b = c+d \right\}$ forms a vector space.

6406532238274. ✔ The set of all $n \times n$ matrices with rank strictly less than n does not form a vector space.

Sem2 Statistics2

Section Id :	64065344877
Section Number :	7
Section type :	Online
Mandatory or Optional :	Mandatory