Unit 4 - Week 2

Assignment 2

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

Due on 2020-09-30, 23:59 IST.

1) The linear system $x+y=2 \;\; x-y=0$ represents *1 point*

- two lines in $\mathbb{R}^2$ intersecting at a point.
- the same line in $\mathbb{R}^2$.
- two parallel lines in $\mathbb{R}^2$, NO intersection.

No, the answer is incorrect.
Score: 0
Accepted Answers:
two lines in $\mathbb{R}^2$ intersecting at a point.

2) The linear system $x+y=2 \;\; 2x+2y=1$ represents *1 point*

- two lines in $\mathbb{R}^2$ intersecting at a point.
- the same line in $\mathbb{R}^2$.
- two parallel lines in $\mathbb{R}^2$, NO intersection.

No, the answer is incorrect.
Score: 0
Accepted Answers:
two parallel lines in $\mathbb{R}^2$, NO intersection.

3) The linear systems $S := x+y=2 \;\; x-y=0 \;\; 2x-y=1$ and $T := x+y=2 \;\; x-y=0 \;\; 2x+2y=1$, respectively, represent three lines in $\mathbb{R}^2$ *1 point*

- with both having NO point of intersection
- with both having a single point of intersection
- with S having a single point of intersection but T having no point of intersection
- with T having a single point of intersection but S having no point of intersection

No, the answer is incorrect.
Score: 0
Accepted Answers:
with S having a single point of intersection but T having no point of intersection

4) Consider the two statements given below. *1 point*

(I) B be a square invertible matrix. Then the system $A\mathbf{x}=\mathbf{b}$ and $BA\mathbf{x}=B\mathbf{b}$ are row-equivalent.
(II) Suppose $A\mathbf{x}=\mathbf{b}$ and $C\mathbf{x}=\mathbf{b}$ have the same solutions for every $\mathbf{b}$. Then $A=C$.
Then, which among the following is a CORRECT Option?

- Statement (I) is TRUE whereas Statement (II) is FALSE
- Both Statement (I) and Statement (II) are TRUE
- Statement (I) is FALSE whereas Statement (II) is TRUE
- Both Statement (I) and Statement (II) are FALSE

No, the answer is incorrect.
Score: 0
Accepted Answers:
Both Statement (I) and Statement (II) are TRUE

5) Let $M=\begin{bmatrix}-1 & 1 & 1\\ -2 & 3 & 4\\ 2 & 2 & 1\end{bmatrix}$. Suppose the application of the Gauss-Elimination Method to M gives $LM=U$, where L is lower triangular, U is upper triangular with $U_{11}=-1$ and $U_{33}=-5$ then the value of $|L_{32}|$ equals .....

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 3.9,4.1

1 point

6) Let $L=\begin{bmatrix}1 & 0 & 0\\ 2 & 1 & 0\\ 2 & 1 & 1\end{bmatrix}$, $U=\begin{bmatrix}1 & 1 & 1\\ 0 & 1 & 2\\ 0 & 0 & -3\end{bmatrix}$ and $\mathbf{b}=\begin{bmatrix}2\\ 4\\ 4\end{bmatrix}$. If $\mathbf{y}$ is the solution of the system $L\mathbf{y}=\mathbf{b}$ and $\mathbf{x}$ is the solution of

$U\mathbf{x}=\mathbf{y}+2\mathbf{e}_2$

then the value of $\mathbf{x}_2$ equals .....

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 1.9,2.1

1 point

7) The parabola $y=a+bx+cx^2$ goes through the points $(x,y)=(1,4),(2,8)$ and $(3,14)$ for certain values of a,b and c. Then the value of $7a+5b+c$ equals.....

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 19.5,20.5

1 point

8) The graph of $y=ax^3+bx^2+cx+d$ passes through $(1,2),(-1,6),(2,3)$ and $(0,1)$ for certain values of a,b,c and d. Then the value of $3a+2b+3c+4d$ equals .....

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 3.9,4.1

1 point

9) Let $\mathbf{u}=(1,1,-2)^T$ and $\mathbf{v}=(-1,2,3)^T$. Then the condition on x,y and z such that the system $c\mathbf{u}+d\mathbf{v}=(x,y,z)^T$ in the variables c and d is consistent equals *1 point*

- $7x-y+2z=0$
- $7x-y-3z=0$
- $7x+y+2z=0$
- $7x-y+3z=0$

No, the answer is incorrect.
Score: 0
Accepted Answers:
$7x-y+3z=0$

10) Consider the linear system $x+y+z=3, \;\; x+2y+cz=4, \;\; 2x+3y+2cz=k$ in the unknowns x,y and z.
Then the above system has a Unique solution if $c \neq$

No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) .9,1.1

1 point