Started on	Friday, 12 March 2021, 8:30:46 AM
State	Finished
Completed on	Friday, 12 March 2021, 9:20:42 AM
Time taken	49 mins 56 secs
Grade	**12.00** out of 20.00 (**60**%)

Question **1**

Not answered

Marked out of 2.00

Drag the correct answer

For what value of k and a, b, c the given system has a unique solution

2x + y = a ; x + ky - z = b ; y +2z = c

☐

k not equal to 0 and for all values of a , b , c	k = 0 and for any value of a , b , c	k not equal to 0 and for a = b = c

k not equal to 0 and for any value of a not equal to b and c=1

The correct answer is:
Drag the correct answer

For what value of k and a, b, c the given system has a unique solution

2x + y = a ; x + ky - z = b ; y +2z = c

[k not equal to 0 and for all values of a , b , c]

Question **2**

Incorrect

Mark 0.00 out of 2.00

Drag the correct values in the increasing order(smallest first)

The rank of the following matrix is 2 if and only if the value of x is neither ☐ ✖   nor ☐ ✖

$$A = \begin{pmatrix} x & 9 \\ 3 & 3x \end{pmatrix}$$

-3	-2	-4

3	2	4

The correct answer is:
Drag the correct values in the increasing order(smallest first)

The rank of the following matrix is 2 if and only if the value of x is neither [-3] nor [3]

$$A = \begin{pmatrix} x & 9 \\ 3 & 3x \end{pmatrix}$$

Question **3**

Correct

Mark 3.00 out of 3.00

Select True or False:

True	False		
◉✓	○✗	The system of equations 3x + 4y +5z = a; 4x + 5y + 6z = b; 5x + 6y + 7z = c are consistent only if a, b, c are in arithmetic progression	✔

The system of equations
3x + 4y +5z = a; 4x + 5y + 6z = b; 5x + 6y + 7z = c
are consistent only if a, b, c are in arithmetic progression: True

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Question **4**

Correct

Mark 1.00 out of 1.00

True or False

Let $A = \begin{pmatrix} \cos x & -\sin x \\ \sin x & \cos x \end{pmatrix}$ be a rotation matrix. For all values of $x \in \mathbb{R}$, the rank of A is 2.

Select one:

◉ True ✔

○ False

The correct answer is 'True'.

Question **5**

Correct

Mark 2.00 out of 2.00

Solve the following system and choose the correct answer.

$$3x_1 + x_2 = -x_3$$
$$x_1 + x_2 = -x_3$$
$$-\tfrac{3}{4}x_1 - \tfrac{1}{4}x_2 - \tfrac{1}{4}x_3 = 0$$
$$12x_1 + 12x_2 + 12x_3 = 0$$

◉ system has infinitely many solutions   ✔

○ system has no solutions

○ system has unique solution

○ system has only zero solution

The correct answer is: system has infinitely many solutions

Question **6**

Partially correct

Mark 1.00 out of 2.00

Fill in the blanks by dragging the correct boxes from the boxes below the question:

Let V be the usual vector space of all real valued functions defined on $\mathbb{R}$. The additive inverse of a constant function with range {k} is ▯ ✔
. ▯ ✖ function is the only function which is the additive inverse of itself. $f(x) = x^2$ and $g(y) = y^2$ are ▯ ✖ and the subspace generated by them is ▯ ✔ .

f(x) = -k. | Zero | equal. | the set of all parabolas with center at origin. | f(x) ≠ 0 | not the same. | they are additive inverses of each other.

the set of parabolas pointing upward. | the set of all parabolas. | Non zero | Constant

The correct answer is:

Fill in the blanks by dragging the correct boxes from the boxes below the question:

Let V be the usual vector space of all real valued functions defined on $\mathbb{R}$. The additive inverse of a constant function with range {k} is [f(x) = -k.]. [Zero] function is the only function which is the additive inverse of itself. $f(x) = x^2$ and $g(y) = y^2$ are [equal.] and the subspace generated by them is [the set of all parabolas with center at origin.].

Question **7**

Correct

Mark 2.00 out of 2.00

Choose correct answer.

Let A, B, C be $n \times n$ matrices, each with non-zero determinant. If $ABCD = I$, then B^{-1} is

- ○ $D^{-1}A^{-1}C^{-1}$
- ◉ CDA ✔
- ○ CAD
- ○ $C^{-1}D^{-1}A^{-1}$

The correct answer is: CDA

Question **8**

Correct

Mark 2.00 out of 2.00

What is the dimension of vector space of 5×5 real matrices with sum of entries of each row is zero?

Answer: | 20 | ✔

The correct answer is: 20

Question **9**
Incorrect
Mark 0.00 out of 1.00

If $|A| \neq 0$ then a system $AX = B$ is ☐ ✖

| inconsistent and has no solution | consistent and has trivial solution | consistent and has unique solution |

The correct answer is:
If $|A| \neq 0$ then a system $AX = B$ is [consistent and has unique solution]

Question **10**
Correct
Mark 1.00 out of 1.00

Given that $2u_1 - 3u_2 + u_3 = 0$. Can you say that u_1, u_2, u_3 are dependent vectors?

○ a. Yes   ✔

○ b. No

○ c. Depends on the vector space.

○ d. Can't say

The correct answer is: Yes

Question **11**
Incorrect
Mark 0.00 out of 1.00

If A is a square matrix such that $A^2 = 0$, then the inverse of $(I + A)$ is

Answer: I   ✖

The correct answer is:
I-A

Question **12**

Incorrect

Mark 0.00 out of 1.00

Determine whether the following statement is True or False.

Set of vectors $\{(2, -3), (-4, 6)\}$ forms a basis of $\mathbb{R}^2$.

Select one:

- ○ True   ✖
- ○ False

The correct answer is: False

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