ID: 15975

DATE: _____

~~90-88~~

~~= 2 Answer~~

Q NO 2:

ANSWER:

In matrix form we can write it as:

$450 \times 1 + 25 \times 2 = 1000$.

$400 \times 1 + 350 \times 2 = 500$

$$\begin{bmatrix} 450 & 250 \\ 400 & 350 \end{bmatrix} \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 1000 \\ 500 \end{bmatrix}$$

$A \quad X \quad B$

$= X = A^{-1} B$

$$\begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \begin{bmatrix} 450 & 250 \\ 400 & 350 \end{bmatrix}^{-1} \begin{bmatrix} 1000 \\ 500 \end{bmatrix}$$

$$\text{adj}(A) = \begin{bmatrix} 300 & -250 \\ -400 & 450 \end{bmatrix} \quad |A| = \begin{bmatrix} 450 & 250 \\ 400 & 350 \end{bmatrix}$$

$|A| = (450)\cdot(350) - (250)(400)$

$= 157.500 \cdot 100,000 = 57,500$-

$$= \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \frac{1}{57500} \begin{bmatrix} 350 & -250 \\ -400 & 450 \end{bmatrix} \begin{bmatrix} 1000 \\ 500 \end{bmatrix}$$

B3

$$= \begin{bmatrix} x_1 \\ x_2 \end{bmatrix} = \frac{1}{57{,}500} \begin{bmatrix} 350.000 & -125{,}000 \\ -400{,}000 & +225{,}000 \end{bmatrix}$$

$$= \begin{bmatrix} 225{,}000 \\ -175.000 \end{bmatrix}$$

$= x_1 = 225{,}000 \quad , \quad x_2 = 175{,}000$

Total Cost $= x_1 + x_2 = 400{,}000$

3 4

ID 15975

DATE:

Q 3 Answer:

Answer:

A vector state is a collection of objects called vectors, which may be added together and multiplied by numbers. Scalar are often taken to be real numbers. but there are also vector spaces with scalar multiplications by complex numbers, rational numbers or generally any field.

a) Sol^n: $k\begin{pmatrix} a & b \\ c & d \end{pmatrix} = \begin{pmatrix} ka & b \\ kc & d \end{pmatrix}$

For $k \in R$.

According to the definition of vector space if any scalar scalar multiplied by vector space than it will become vector space.

so in this case

$k\begin{pmatrix} a & b \\ c & d \end{pmatrix}$ is not vector space

ID 15975

DATE:

Q NO 4:

ANSWER:

a) Let $m \begin{pmatrix} a & b \\ c & d \end{pmatrix}$ 2×2.

inverse

$$m^{-1} = \frac{1}{\det m} = \begin{bmatrix} d & -b \\ -c & a \end{bmatrix} = da - bc.$$

entries and d for matrix m interchanged

Put -ive in front Front of b and c

b) $\begin{pmatrix} 3 & 4 \\ 2 & 3 \end{pmatrix} = 9 - 8 = 1$

c) $\begin{pmatrix} 2 & 2 \\ 3 & 3 \end{pmatrix} = 6 - 6 = 0$

d) $A = \begin{vmatrix} 1 & 1 & 1 \\ 5 & 9 & 5 \\ 7 & 1 & 5 \end{vmatrix}$

$1 \cdot 9 \cdot 5 + 1 \cdot 5 \cdot 7 + 1 \cdot 5 \cdot 1 - 1 \cdot 9 \cdot 7 - 1 \cdot 5 \cdot 5 - 1 \cdot 5 \cdot 1.$

$= 45 + 35 + 5 - 63 - 25 + 5$

$= 45 + 35 + 5 + 5 - 63 - 25 = 90 - 88 =$

2 Answer

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$$\begin{pmatrix} ka & b \\ kc & d \end{pmatrix} \neq \begin{pmatrix} ka & kb \\ kc & kd \end{pmatrix}$$

b) Sol^n:

Let $P(x) = a_1x^3 + a_2x^2 + x + c$ which is defined and correct according to def. of vector space.

DATE:

NAME - Bilal
ID : 15975
DEP : BSCS - II

Q NO 1 :
ANSWER :

For R^3, $V_1 \times V_2 \times V_3 = \begin{pmatrix} 1 \\ 5 \\ 9 \end{pmatrix} \begin{pmatrix} 5 \\ 9 \\ 7 \end{pmatrix} \begin{pmatrix} 9 \\ 7 \\ 5 \end{pmatrix}$

$= 1D_1(5.9.7) + 1D_2(5.9.7) + 1D_3(5.5.7)$

= The desired candidates for R_3 is

(1.5, 5.5, 9.5)

Similarly (1.9, 5.9, 9.9)
and (1.7, 5.7, 9.7)

So $A = \begin{bmatrix} 1.5 & 1.9 & 1.7 \\ 5.5 & 5.9 & 5.7 \\ 9.5 & 9.9 & 9.7 \end{bmatrix}$

So you can see each column of above R_3 vector are linear dependent

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