

ASSIGNMENT

Subject : Basic Mathematics
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Assigning Date : 14th September , 2020
End Date: 20th September, 2020

Attempt all the questions, each question having (5) marks

Q1. Transpose to make x the subject:

a. $y = 3x$

b. $y = 1/x$

c. $y = 7x - 5$

d. $y = 1/2 x - 7$

Q2. Solve the followings :

2. a. $\frac{1}{2}x + \frac{3}{2}(x - 4) = 6$

$-21x + 12 = -6 - 3x$

b. $4x + \frac{1}{2}(2x - 4) = 18$

$-1 - 7m = -8m + 7$

Q3.

$2x + y = 2$

$3x + 7y = 14$

$x + 5y = 15$

$-3x + 2y = 6$

$-2x + 4y = -16$

$y = -2$

$2x + y = -7$

$5x + 3y = -21$

$2x + 3y = -10$

$7x + y = 3$

$-2x + 2y = -22$

$-5x - 7y = -19$

If $A = \begin{bmatrix} 3 & 1 \\ -2 & 3 \end{bmatrix}$ find $|A|$

Q.5 Write each product as a single matrix:

i.
$$\begin{bmatrix} 3 & 1 & -1 \\ 0 & -1 & 2 \end{bmatrix} \begin{bmatrix} 1 & -1 \\ 0 & 2 \\ 1 & 0 \end{bmatrix}$$

ii.
$$[3 \quad -2 \quad 2] \begin{bmatrix} 1 \\ 2 \\ -2 \end{bmatrix}$$

iii.
$$\begin{bmatrix} 2 & -2 & -1 \\ 1 & 1 & -2 \\ 1 & 0 & -1 \end{bmatrix} \begin{bmatrix} -1 & -2 & 5 \\ -1 & -1 & 3 \\ -1 & -2 & 4 \end{bmatrix}$$

iv.
$$\begin{bmatrix} -1 & -2 & 5 \\ -1 & -1 & 3 \\ -1 & -2 & 4 \end{bmatrix} \begin{bmatrix} 2 & -2 & -1 \\ 1 & 1 & -2 \\ 1 & 0 & -1 \end{bmatrix}$$

Q.6 If $A = \begin{bmatrix} 1 & 4 \\ 2 & 1 \end{bmatrix}$, $B = \begin{bmatrix} -3 & 2 \\ 4 & 0 \end{bmatrix}$, $C = \begin{bmatrix} 1 & 0 \\ 0 & 2 \end{bmatrix}$, find $A^2 + BC$.

Q.7 Show that if $A = \begin{bmatrix} -1 & 2 \\ 0 & 1 \end{bmatrix}$ and $B = \begin{bmatrix} 1 & 0 \\ -1 & 2 \end{bmatrix}$, then

(a) $(A + B)(A + B) \neq A^2 + 2AB + B^2$

(b) $(A + B)(A - B) \neq A^2 - B^2$

Q.8 Show that:

(i)
$$\begin{bmatrix} -1 & 2 & 3 \\ 2 & 1 & 0 \\ 3 & 5 & -1 \end{bmatrix} \begin{bmatrix} a \\ b \\ c \end{bmatrix} = \begin{bmatrix} -a + 2b + 3c \\ 2a + b \\ 3a + 5b - c \end{bmatrix}$$