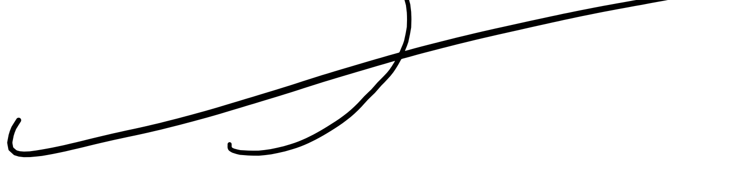
الحصة : الاحد

1:30 P.M



Q1: $A^2 = A \cdot A$, $[A - B = A + (-B)$

$$\underbrace{\begin{vmatrix} 3 & 0 & 0 \\ 0 & 1 & 2 \\ 0 & 2 & 1 \end{vmatrix}}_{A} \cdot \underbrace{\begin{vmatrix} 3 & 0 & 0 \\ 0 & 1 & 2 \\ 0 & 2 & 1 \end{vmatrix}}_{A} = \underbrace{\begin{vmatrix} 9 & 0 & 0 \\ 0 & 5 & 4 \\ 0 & 4 & 5 \end{vmatrix}}_{A^2}$$

$$2A = 2\begin{vmatrix} 3 & 0 & 0 \\ 0 & 1 & 2 \\ 0 & 2 & 1 \end{vmatrix} = \begin{vmatrix} 6 & 0 & 0 \\ 0 & 2 & 4 \\ 0 & 4 & 2 \end{vmatrix}$$

$$3I = 3\begin{vmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{vmatrix} = \begin{vmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{vmatrix}$$

$$A^2 - 2A - 3I$$

$$(A^2 + (-(2A))) + (-3I)$$

$$\begin{vmatrix} 9 & 0 & 0 \\ 0 & 5 & 4 \\ 0 & 4 & 5 \end{vmatrix} + \begin{vmatrix} -6 & 0 & 0 \\ 0 & -2 & -4 \\ 0 & -4 & -2 \end{vmatrix} + \begin{vmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & -3 \end{vmatrix}$$

$$\begin{vmatrix} 3 & 0 & 0 \\ 0 & 3 & 0 \\ 0 & 0 & 3 \end{vmatrix} + \begin{vmatrix} -3 & 0 & 0 \\ 0 & -3 & 0 \\ 0 & 0 & -3 \end{vmatrix} = \begin{vmatrix} 0 & 0 & 0 \\ 0 & 0 & 0 \\ 0 & 0 & 0 \end{vmatrix} = 0$$

#

Q 3 $\quad A^T \begin{vmatrix} a & b & c \\ a+1 & b+1 & c+1 \\ a+2 & b+2 & c+2 \end{vmatrix}$

$-R_1 + R_2$ and $-R_1 + R_3$

$$\begin{vmatrix} a & b & c \\ 1 & 1 & 1 \\ 2 & 2 & 2 \end{vmatrix} = 0$$

$\#$

Q4 $\begin{bmatrix} x & y \\ z & t \end{bmatrix}\begin{bmatrix} 1 \\ 2 \end{bmatrix} = \begin{bmatrix} x & -2y \\ z & -2t \end{bmatrix} = \begin{bmatrix} 4 \\ -5 \end{bmatrix}$

$x - 2y = 4$

$z - 2t = -5$

$\begin{bmatrix} x & y \\ z & t \end{bmatrix} = \begin{bmatrix} 2 \\ 1 \end{bmatrix} = \begin{bmatrix} 2x & y \\ 2z & t \end{bmatrix} = \begin{bmatrix} 3 \\ 5 \end{bmatrix}$

$2x + y = 3$

$2z + t = 5$

$x - 2y = 4$

$2x + y = 3$

$\left[\begin{array}{cc|c} 1 & -2 & 4 \\ 2 & 1 & 3 \end{array}\right] \begin{array}{l} -2R_1 \\ +R_2 \end{array}$

$\left[\begin{array}{cc|c} 1 & -2 & 4 \\ 0 & 5 & -5 \end{array}\right] \begin{array}{l} (1)\ \frac{1}{5}R_2 \\ (2)\ 2R_2 + R_1 \end{array} = \left[\begin{array}{cc|c} 1 & 0 & 2 \\ 0 & 1 & -1 \end{array}\right]$

$x = 2 \qquad y = -1$

$$z - 2t = -5 \qquad \left[\begin{array}{cc|c} 1 & -2 & -5 \\ 2 & 1 & 5 \end{array}\right]$$

$$2z + t = 5$$

$$-2R_1 + R_2 \qquad \left[\begin{array}{cc|c} 1 & -2 & -5 \\ 0 & 5 & 15 \end{array}\right]$$

$$\frac{1}{5} R_2 \ (1)$$

$$2R_2 + 1 \ (2) \qquad \left[\begin{array}{cc|c} 1 & 0 & 1 \\ 0 & 1 & 3 \end{array}\right]$$

$$z = 1$$

$$t = 3$$

#

Q 2 $|A^2+I| = 2$

$$|A(A+A^{-1})|$$

$$|A|\,|A+A^{-1}| = 2$$

$$\frac{\cancel{3}\,|A+A^{-1}|}{\cancel{3}} = \frac{2}{3}$$

$$|A+A^{-1}| = \frac{2}{3}$$

#

Q 5 $\left[\begin{array}{ccc|c} 1 & -2 & 1 & 0 \\ 1 & a & -3 & 0 \\ -1 & 6 & -5 & 0 \end{array}\right] \begin{array}{l} -R_1+R_2 \\ R_1+R_3 \end{array}$

$= \left[\begin{array}{ccc|c} 1 & -2 & 1 & 0 \\ 0 & a+2 & -4 & 0 \\ 0 & 4 & -4 & 0 \end{array}\right] \frac{1}{4} R_3$

$= \left[\begin{array}{ccc|c} 1 & -2 & 1 & 0 \\ 0 & a+2 & -4 & 0 \\ 0 & 1 & -1 & 0 \end{array}\right] = R_3 \Leftrightarrow R_2$

$\left[\begin{array}{ccc|c} 1 & -2 & 1 & 0 \\ 0 & 1 & -1 & 0 \\ 0 & a+2 & -4 & 0 \end{array}\right] \begin{array}{l} -(a+2) R_3 \\ = \end{array}$

$\left[\begin{array}{ccc|c} 1 & -2 & 1 & 0 \\ 0 & 1 & -1 & 0 \\ 0 & 0 & a-2 & 0 \end{array}\right]$

* $a-2=0$ then $a=2$

then ∞ many sol

* $a = \mathbb{R} - \{2\}$ (one sol)

غير متأكد من الحل

بس ما وصلت

مع الدكتور تركي

CH3 لحد كتابة الواجب

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