Page

Sub :

Day

Time : Date : / /

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2

Ans NO-2

$$A = \begin{bmatrix} 5 & -7 & 1 \\ -7 & 8 & 2 \\ 1 & 2 & -4 \end{bmatrix}$$

hence,

$$2A = \begin{bmatrix} 10 & -14 & 2 \\ -14 & 16 & 4 \\ 2 & 4 & -8 \end{bmatrix}$$

$$A^T = \begin{bmatrix} 5 & -7 & 1 \\ -7 & 8 & 2 \\ 1 & 2 & -4 \end{bmatrix}$$

$\text{tra}(A^T) = 5 + 8 - 4 = 9$.

Sub: Day Time: Date: / /

$$2A = \begin{bmatrix} 10 & -14 & 2 \\ -14 & 16 & 4 \\ 2 & 4 & -8 \end{bmatrix}$$

$$= 10(14\cdot(-8)+16) + 14(-14\cdot-8+4\cdot2) + 2\cdot(-14\cdot4+16\cdot2)$$

$$= 10(-112+16) + 14(112+8) + 2(56+32)$$

$$= -960 + 1680 + 176$$

$$= 896$$

$$A = \begin{bmatrix} 5 & -7 & 1 \\ -7 & 8 & 2 \\ 1 & 2 & -4 \end{bmatrix}$$

$$= 5(8\cdot-4+4) + 7(-7\cdot-4+8) + 1(-7\cdot2+8)$$

Sub :

Day

Time : Date : / /

$= 5(-28) + 140 - 6$

$= -140 + 140 - 6$

$= -6$

$A^2 = (-6)^2$

$= 36$

$\therefore A^2 + 2A + \text{trace}(A^T) = 9 + 896 + 36$

$= 941$