The matrix A is given as: $A = \begin{pmatrix} 1 & 1 & 3 \\ 2 & -2 & -5 \\ 1 & 4 & 3 \end{pmatrix}$

1) Calculate $\Delta = |A| = \begin{vmatrix} & & \\ & & \\ & & \end{vmatrix}$

2) Calculate algebraic cofactors:

$A_{11} =$

$A_{12} =$

$A_{13} =$

$A_{21} =$

$A_{22} =$

$A_{23} =$

$A_{31} =$

$A_{32} =$

$A_{33} =$

3) Decompose this determinant in rows and columns:

(row 1) $\Delta = |A| = a_{11} \cdot A_{11} + a_{12} \cdot A_{12} + a_{13} \cdot A_{13} =$

(row 2) $\Delta = |A| = a_{21} \cdot A_{21} + a_{22} \cdot A_{22} + a_{23} \cdot A_{23} =$

(row 3) $\Delta = |A| = a_{31} \cdot A_{31} + a_{32} \cdot A_{32} + a_{33} \cdot A_{33} =$

(column 1) $\Delta = |A| = a_{11} \cdot A_{11} + a_{21} \cdot A_{21} + a_{31} \cdot A_{31} =$

(column 2) $\Delta = |A| = a_{12} \cdot A_{12} + a_{22} \cdot A_{22} + a_{32} \cdot A_{32} =$

(column 3) $\Delta = |A| = a_{13} \cdot A_{13} + a_{23} \cdot A_{23} + a_{33} \cdot A_{33} =$

4) The inverse matrix is

$$A^{-1} = \frac{1}{|A|} \cdot \begin{pmatrix} A_{11} & A_{12} & A_{13} \\ A_{21} & A_{22} & A_{23} \\ A_{31} & A_{32} & A_{33} \end{pmatrix}^T = \frac{1}{|A|} \cdot \begin{pmatrix} A_{11} & A_{21} & A_{31} \\ A_{12} & A_{22} & A_{32} \\ A_{13} & A_{23} & A_{33} \end{pmatrix} =$$

5) Matrices A and B are given. Find: 1) $A + B$**; 2)** $2A - 3B^T$ **;**

$$A = \begin{pmatrix} 1 & 1 & 3 \\ 2 & -2 & -5 \\ 1 & 4 & 3 \end{pmatrix}; \; B = \begin{pmatrix} 2 & -4 & 5 \\ 0 & 2 & -2 \\ -5 & 4 & 1 \end{pmatrix}$$

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