Left page:

$$\begin{pmatrix} 2 & 3 & 1 \\ 4 & -5 & 2 \\ 5 & 7 & 3 \end{pmatrix} = -30 -8 -30 + 25 + 36 + 28 = 170$$

$$\begin{vmatrix} -5 & 2 \\ -7 & 3 \end{vmatrix} =$$

1) $A_{11} = \begin{vmatrix} -3 & 4 \\ -5 & 2 \end{vmatrix} = -6 + 5 = -1$

$A_{12} = -\begin{vmatrix} 4 & 2 \\ 5 & 3 \end{vmatrix} = -(12 - 10) = -2$

$A_{13} = \begin{vmatrix} 4 & -3 \\ 5 & 7 \end{vmatrix} = -29 + 25 = -3$

$A_{21} = -\begin{vmatrix} 3 & 1 \\ 7 & 3 \end{vmatrix} = -(-3 + 7) = +2$

$A_{22} = \begin{vmatrix} 2 & 1 \\ 5 & 3 \end{vmatrix} = 6 - 5 = 1$

$A_{23} = -\begin{vmatrix} 2 & -3 \\ 5 & -7 \end{vmatrix} = -(14 + 15) = -1$

$A_{31} = \begin{vmatrix} 3 & 1 \\ -5 & 2 \end{vmatrix} = -6 + 5 = -1$

$A_{32} = -\begin{vmatrix} 2 & 1 \\ 4 & 2 \end{vmatrix} = -(4 - 4) = 0$

$A_{33} = \begin{vmatrix} 2 & -3 \\ 4 & -5 \end{vmatrix} = -10 + 12 = 2$

Right page:

2) $\tilde{A} = \begin{pmatrix} -1 & 2 & -1 \\ -2 & 1 & 0 \\ -3 & -1 & 2 \end{pmatrix}$

$A^{-1} = \frac{1}{7} \cdot \begin{pmatrix} -1 & 2 & -1 \\ -2 & 1 & 0 \\ -3 & -1 & 2 \end{pmatrix} = \begin{pmatrix} -1 & 2 & -1 \\ -2 & 1 & 0 \\ -3 & -1 & 2 \end{pmatrix}$

~ 1.4.6

$$\begin{pmatrix} 5 & 2 & 1 \\ 2 & 3 & 1 \\ 2 & 1 & 3 \end{pmatrix} = 27 + 4 + 2 - 6 - 12 - 3 =$$

$= 12 \neq 0$

1) $A_{11} = \begin{vmatrix} 3 & 1 \\ 1 & 3 \end{vmatrix} = 9 - 1 = 8$

$A_{12} = -\begin{vmatrix} 2 & 1 \\ 2 & 3 \end{vmatrix} = -(6 - 2) = -4$

$A_{13} = \begin{vmatrix} 2 & 3 \\ 2 & 1 \end{vmatrix} = 2 - 6 = -4$

$A_{21} = -\begin{vmatrix} 2 & 1 \\ 1 & 3 \end{vmatrix} = -(6 - 1) = -5$

$A_{22} = \begin{vmatrix} 3 & 1 \\ 2 & 3 \end{vmatrix} = 9 - 2 = 7$

$A_{23} = -\begin{vmatrix} 3 & 2 \\ 2 & 1 \end{vmatrix} = -(3 - 4) = +1$

$A_{31} = \begin{vmatrix} 2 & 1 \\ 3 & 1 \end{vmatrix} = 2 - 3 = -1$

$$A_{32} = -\begin{vmatrix} 3 & 1 \\ 2 & 1 \end{vmatrix} = -(3-2) = 1$$

$$A_{33} = \begin{vmatrix} 3 & 2 \\ 2 & 3 \end{vmatrix} = 9 - 4 = 5$$

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

$$A^{-1} = \frac{1}{12} \cdot \begin{pmatrix} 8 & -5 & -1 \\ -7 & 7 & -1 \\ -4 & 1 & 5 \end{pmatrix} = \begin{pmatrix} 2/3 & -5/12 & -1/12 \\ -7/12 & 7/12 & -1/12 \\ -1/3 & 1/12 & 5/12 \end{pmatrix}$$

≈ 147.

$$\begin{pmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \\ 7 & 8 & 9 \end{pmatrix} = 45 + 84 + 96 - 105 - 72 - 48 =$$

$$= 0 \Rightarrow \not\exists A^{-1}$$

≈ 148.

$$\begin{pmatrix} 5 & 3 & 1 \\ 1 & -3 & -2 \\ -3 & 2 & 1 \end{pmatrix} = -15 + 30 + 2 - 15 - 3 + 20 = 19$$

1) $A_{11} = \begin{vmatrix} -3 & -2 \\ 2 & 1 \end{vmatrix} = -3 + 4 = 1$

$A_{12} = -\begin{vmatrix} 1 & -2 \\ -3 & 1 \end{vmatrix} = 1 - 10 = -9$

$A_{13} = \begin{vmatrix} 1 & -3 \\ -3 & 2 \end{vmatrix} = 2 - 15 = -13$

$A_{21} = -\begin{vmatrix} 3 & 1 \\ 2 & 1 \end{vmatrix} = -(3-2) = -1$

$A_{22} = \begin{vmatrix} 5 & 1 \\ -3 & 1 \end{vmatrix} = 5 + 5 = 10$

$A_{23} = -\begin{vmatrix} 5 & 3 \\ -3 & 2 \end{vmatrix} = -(10+15) = -25$

$A_{31} = \begin{vmatrix} 3 & 1 \\ -3 & 2 \end{vmatrix} = (-6+3) = -3$

$A_{32} = -\begin{vmatrix} 5 & 1 \\ 1 & -2 \end{vmatrix} = -(-10-1) = 11$

$A_{33} = \begin{vmatrix} 5 & 3 \\ 1 & -3 \end{vmatrix} = -15 + 3 = -12$

2) $\tilde{A} = \begin{pmatrix} 1 & -1 & -3 \\ -9 & 10 & 11 \\ -13 & -25 & -12 \end{pmatrix}$

$$A^{-1} = \frac{1}{19} \cdot \begin{pmatrix} 1 & -1 & -3 \\ -9 & 10 & 11 \\ -13 & -25 & -12 \end{pmatrix} = \begin{pmatrix} \frac{1}{19} & -\frac{1}{19} & -\frac{3}{19} \\ -\frac{9}{19} & \frac{10}{19} & \frac{11}{19} \\ -\frac{13}{19} & -\frac{25}{19} & -\frac{12}{19} \end{pmatrix}$$