d) Matriz inversa

1)

$$A=\begin{bmatrix}2 & 5\\ -3 & -4\end{bmatrix} \qquad A^{-1}=\frac{1}{\det(A)}\cdot\begin{bmatrix}C_{22} & -C_{12}\\ -C_{21} & C_{11}\end{bmatrix}$$

$$\det(A)=\begin{vmatrix}2 & 5\\ -3 & -4\end{vmatrix}=(2)(-4)-(5)(-3)=1$$

$$A^{-1}=\frac{1}{1}\begin{bmatrix}-4 & -5\\ 3 & 2\end{bmatrix}=\begin{bmatrix}-4 & -5\\ 3 & 2\end{bmatrix}$$

2)

$$A=\begin{bmatrix}3 & 2 & 5\\ 2 & -1 & 4\\ -1 & 2 & 1\end{bmatrix} \qquad \det(A)=\begin{vmatrix}3 & 2 & 5 & 3 & 2\\ 2 & -1 & 4 & 2 & -1\\ -1 & 2 & 1 & -1 & 2\end{vmatrix}=-24$$

$C_{11}=-1-8=-9$ $\quad C_{22}=3+5=8$ $\quad C_{33}=-3-4=-7$

$C_{12}=2+4=6$ $\quad C_{23}=6+2=8$

$C_{13}=4-1=3$ $\quad C_{31}=8+5=13$

$C_{21}=2-10=-8$ $\quad C_{32}=12-10=2$

$$A^{-1}=\frac{1}{\det(A)}\,adj(A)^{T}=\frac{1}{-24}\begin{bmatrix}-9 & 8 & 13\\ -6 & 8 & -2\\ 3 & -8 & -7\end{bmatrix}$$

$$A^{-1}=\begin{bmatrix}3/8 & -1/3 & -13/24\\ 1/4 & -1/3 & 1/12\\ -1/8 & 1/3 & 7/24\end{bmatrix}$$