

(a) Find the inverse of the matrix

$$A = \begin{bmatrix} 4 & 12 & -49 \\ 4 & 13 & -51 \\ 1 & 3 & -12 \end{bmatrix}.$$

$$A^{-1} = \begin{bmatrix} \boxed{} & \boxed{} & \boxed{} \\ \boxed{} & \boxed{} & \boxed{} \\ \boxed{} & \boxed{} & \boxed{} \end{bmatrix}$$

(b) Use the answer from part (a) to solve the linear system

$$\begin{cases} 4x_1 + 12x_2 - 49x_3 = 4 \\ 4x_1 + 13x_2 - 51x_3 = -2 \\ x_1 + 3x_2 - 12x_3 = 2 \end{cases}$$

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} \boxed{} \\ \boxed{} \\ \boxed{} \end{bmatrix}$$

(a) Find the inverse of the matrix

$$A = \begin{bmatrix} 4 & 12 & -49 \\ 4 & 13 & -51 \\ 1 & 3 & -12 \end{bmatrix}.$$

$$A^{-1} = \begin{bmatrix} \boxed{-3} & \boxed{-3} & \boxed{25} \\ \boxed{-3} & \boxed{1} & \boxed{8} \\ \boxed{-1} & \boxed{0} & \boxed{4} \end{bmatrix}$$

(b) Use the answer from part (a) to solve the linear system

$$\begin{cases} 4x_1 + 12x_2 - 49x_3 = 4 \\ 4x_1 + 13x_2 - 51x_3 = -2 \\ x_1 + 3x_2 - 12x_3 = 2 \end{cases}$$

$$\begin{bmatrix} x_1 \\ x_2 \\ x_3 \end{bmatrix} = \begin{bmatrix} \boxed{44} \\ \boxed{2} \\ \boxed{4} \end{bmatrix}$$