

$$a) A^{-1}: \begin{bmatrix} 2 & 3 & 1 \\ 3 & 3 & 1 \\ 2 & 4 & 1 \end{bmatrix} \begin{bmatrix} a & b & c \\ d & e & f \\ g & h & i \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$

$$\begin{aligned} 2a + 3d + g &= 1 \\ 2b + 3e + h &= 0 \\ 2c + 3f + i &= 0 \\ 3a + 3d + g &= 0 \\ 3b + 3e + h &= 1 \\ 3c + 3f + i &= 0 \end{aligned} \quad \begin{aligned} 2a - 3a &= 1 \\ a &= -1 \\ 2b - 3b &= 0 - 1 \\ b &= 1 \\ 2a + 4d + g &= 0 \rightarrow 4d + g = 2 \\ 2b + 4e + h &= 0 \rightarrow 4e + h = -2 \\ 2c + 4f + i &= 1 \rightarrow 4f + i = 1 \end{aligned}$$

$$\begin{cases} 4d + g = 2 \\ 3d + g = 3 \end{cases} \Rightarrow \begin{aligned} d &= -1 \\ g &= 6 \end{aligned}$$

$$A^{-1} = \begin{bmatrix} -1 & 1 & 0 \\ -1 & 0 & 1 \\ 6 & -2 & -3 \end{bmatrix}$$

$$\begin{cases} 4e + h = -2 \\ 3e + h = -2 \end{cases} \Rightarrow \begin{aligned} e &= 0 \\ h &= -2 \end{aligned}$$

$$\begin{cases} 4f + i = 1 \\ 3f + i = 0 \end{cases} \Rightarrow \begin{aligned} f &= 1 \\ i &= -3 \end{aligned}$$

$$X = A^{-1}B$$

$$X = \begin{bmatrix} -1 & 1 & 0 \\ -1 & 0 & 1 \\ 6 & -2 & -3 \end{bmatrix} \cdot \begin{bmatrix} 4 \\ 8 \\ 5 \end{bmatrix}$$

$$b) \text{ como } B = \begin{bmatrix} 0 \\ 0 \\ 0 \end{bmatrix} \text{ e}$$

$$X = A^{-1}B$$

$$\therefore X = 0$$

Para $AX=0$, temos
que $B=0$, se A for inver-
sível.

$$X = \begin{bmatrix} 4 \\ 8 \\ -7 \end{bmatrix}$$