$$|B| = \begin{vmatrix} 1 & -2 \\ 1 & 2 \end{vmatrix} = 2 + 2 = 4 \neq 0$$ donc B inversible

$$\text{cof } B = \begin{pmatrix} +2 & -1 \\ +2 & +1 \end{pmatrix} ; \ (\text{cof } B)^t = \begin{pmatrix} 2 & 2 \\ -1 & 1 \end{pmatrix}$$

donc $$B^{-1} = \frac{1}{\det B} (\text{cof } B)^t = \frac{1}{4} \begin{pmatrix} 2 & 2 \\ -1 & 1 \end{pmatrix}$$

$$C = \begin{array}{c} \begin{array}{ccc} + & - & + \end{array} \\ \begin{pmatrix} 1 & -2 & 1 \\ 2 & -2 & 0 \\ -1 & 3 & 1 \end{pmatrix} \end{array}$$

$$\det(C) = 1 \begin{vmatrix} 2 & -2 \\ -1 & 3 \end{vmatrix} - 0 - \begin{vmatrix} 1 & -2 \\ 2 & -2 \end{vmatrix} = 4 + \cancel{2} = \cancel{6} \neq 0$$
$$= 2 \neq 0$$

donc C est inversible.

$$\text{cof } C = \begin{pmatrix} + \begin{vmatrix} -2 & 0 \\ 3 & -1 \end{vmatrix} & - \begin{vmatrix} 2 & 0 \\ -1 & -1 \end{vmatrix} & + \begin{vmatrix} 2 & -2 \\ -1 & 3 \end{vmatrix} \\ - \begin{vmatrix} -2 & 1 \\ 3 & -1 \end{vmatrix} & + \begin{vmatrix} 1 & 1 \\ -1 & -1 \end{vmatrix} & - \begin{vmatrix} 1 & -2 \\ -1 & 3 \end{vmatrix} \\ + \begin{vmatrix} -2 & 1 \\ 3 & -1 \end{vmatrix} & - \begin{vmatrix} 1 & 1 \\ 2 & 0 \end{vmatrix} & + \begin{vmatrix} 1 & -2 \\ 2 & -2 \end{vmatrix} \end{pmatrix} = \begin{pmatrix} 2 & 2 & 4 \\ 1 & 0 & -1 \\ -1 & 2 & 2 \end{pmatrix}$$

$$(\text{cof } c)^t = \begin{pmatrix} 2 & 1 & -1 \\ 2 & 0 & 2 \\ 4 & -1 & 2 \end{pmatrix} \Rightarrow C^{-1} = \frac{1}{2} \begin{pmatrix} 2 & 1 & -1 \\ 2 & 0 & 2 \\ 4 & -1 & 2 \end{pmatrix}$$

$$= \begin{pmatrix} 1 & 1/2 & -1/2 \\ 1 & 0 & 1 \\ 2 & -1/2 & 1 \end{pmatrix}$$