$$A=\begin{pmatrix}1&-2&2\\-1&1&3\\1&-1&-4\end{pmatrix} \qquad |A|=\begin{vmatrix}1&-2&2\\-1&1&3\\1&-1&-4\end{vmatrix}=1$$

$a_{11}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{11}=\begin{vmatrix}1&3\\-1&-4\end{vmatrix}=-1$ $A^{-1}=\frac{1}{|A|}\begin{pmatrix}-1&&\\&&\\&&\end{pmatrix}$

$a_{12}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{12}=-\begin{vmatrix}-2&2\\-1&-4\end{vmatrix}=10$ $A^{-1}=\begin{pmatrix}-1&-10&\\&&\\&&\end{pmatrix}$

$a_{13}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{13}=\begin{vmatrix}-2&2\\1&3\end{vmatrix}=-8$ $A^{-1}=\begin{pmatrix}-1&-10&-8\\&&\\&&\end{pmatrix}$

$a_{21}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{21}=-\begin{vmatrix}-1&3\\1&-4\end{vmatrix}=-1$ $A^{-1}=\begin{pmatrix}-1&-10&-8\\-1&&\\&&\end{pmatrix}$

$a_{22}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{22}=\begin{vmatrix}1&2\\1&-4\end{vmatrix}=-6$ $A^{-1}=\begin{pmatrix}-1&-10&-8\\-1&-6&\\&&\end{pmatrix}$

$a_{23}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{23}=-\begin{vmatrix}1&2\\-1&3\end{vmatrix}=-5$ $A^{-1}=\begin{pmatrix}-1&-10&-8\\-1&-6&-5\\&&\end{pmatrix}$

$a_{31}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{31}=\begin{vmatrix}-1&1\\1&-1\end{vmatrix}=0$ $A^{-1}=\begin{pmatrix}-1&-10&-8\\-1&-6&-5\\0&&\end{pmatrix}$

$a_{32}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{32}=-\begin{vmatrix}1&-2\\1&-1\end{vmatrix}=-1$ $A^{-1}=\begin{pmatrix}-1&-10&-8\\-1&-6&-5\\0&-1&\end{pmatrix}$

$a_{33}:\ \begin{pmatrix}\color{red}{1}&\color{red}{-2}&\color{red}{2}\\\color{red}{-1}&\color{red}{1}&\color{red}{3}\\\color{red}{1}&\color{red}{-1}&\color{red}{-4}\end{pmatrix}$ $a_{33}=\begin{vmatrix}1&-2\\-1&1\end{vmatrix}=-1$ $A^{-1}=\begin{pmatrix}-1&-10&-8\\-1&-6&-5\\0&-1&-1\end{pmatrix}$

$$A^{-1}=\begin{pmatrix}-1&-10&-8\\-1&-6&-5\\0&-1&-1\end{pmatrix}$$