How to find the inverse matrix?

Inverses of *2* by *2* matrices

$$A = \begin{bmatrix} a & b \\ c & d \end{bmatrix}$$ is invertible if and only if

$ad - bc \neq 0$, for this case

$$A^{-1} = \frac{1}{ad-bc} \begin{bmatrix} d & -b \\ -c & a \end{bmatrix}.$$

Inverses of *n* by *n* matrices

To find the inverse A^{-1} of an invertible matrix A, first find a sequence of elementary row operations that reduces A to the identity matrix and then apply the same sequence of operations in the same order to the identity matrix to transform it into A^{-1}.