Reduced Echelon Matrices

A matrix is called a reduced echelon matrix if it is an echelon matrix and in addition

(i) each leading entry equals 1,

(ii) each leading entry is the only nonzero element in its column.

Solution of Linear systems by Gauss-Jordan Elimination

Apply elementary row operations to the augmented coefficient matrix

$$\left[\begin{array}{cccc|c} a_{11} & a_{12} & \ldots & a_{1n} & b_1 \\ a_{21} & a_{22} & \ldots & a_{2n} & b_2 \\ \ldots & \ldots & \ldots & \ldots & \ldots \\ a_{m1} & a_{m2} & \ldots & a_{mn} & b_m \end{array}\right]$$

to obtain a row-equivalent reduced echelon matrix.

Each matrix is row-equivalent to a unique reduced echelon matrix.