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reduced row echelon form

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For a matrix to be in *reduced row echelon form* (or *Hermite normal form*) it has to first satisfy the requirements to be in row echelon form and additionally satisfy the following requirements:

1. The first non-zero element in any row must be 1.

2. The first element of value 1 in any row must be the only non-zero value in its column.

An example of a matrix in reduced row echelon form could be:

$$\begin{pmatrix} 0 & 1 & 2 & 6 & 0 & 1 & 0 & 0 & 4 & 0 \\ 0 & 0 & 0 & 0 & 1 & 1 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 1 & 0 & 4 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 1 & 2 & 1 \\ 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 & 0 \end{pmatrix}$$