

The program is very easy to use: just enter `stepmat( your_matrix )` and press enter. If *your\_matrix* is a square matrix the programs calculates the inverse otherwise it calculates the reduced row echelon form.

If matrix dimension isn't (n,n) or (n,n+1) it returns an error message.

The program shows all steps and stores them in variables that, if you want, you can see in a second time. At the end of the calculus the programs check the work using `rref( your_matrix )` or `your_matrix ^-1` to be sure that the work is exact.

The program works also with implicit variables but it's a little slower.

Example:

Calculate the reduced echelon form of this matrix:

$$\begin{bmatrix} 6 & 3 & 8 & 3 \\ 1 & 4 & 9 & -1 \\ -7 & -2 & 7 & 4 \end{bmatrix}$$

Enter `stepmat`( $\begin{bmatrix} 6 & 3 & 8 & 3 \\ 1 & 4 & 9 & -1 \\ -7 & -2 & 7 & 4 \end{bmatrix}$ )

<p>Calculator screen showing the initial matrix input for <code>stepmat</code>. The matrix is <math>\begin{bmatrix} 6 &amp; 3 &amp; 8 &amp; 3 \\ 1 &amp; 4 &amp; 9 &amp; -1 \\ -7 &amp; -2 &amp; 7 &amp; 4 \end{bmatrix}</math>. The screen shows the matrix being entered into the calculator's matrix editor.</p>	<p>Calculator screen showing the first row operation: <math>R1 - 6R2</math>. The resulting matrix is <math>\begin{bmatrix} 1 &amp; 1/2 &amp; 4/3 &amp; 1/2 \\ 1 &amp; 4 &amp; 9 &amp; -1 \\ 1 &amp; 2/7 &amp; -1 &amp; -4/7 \end{bmatrix}</math>.</p>
<p>Calculator screen showing the second row operation: <math>R2 - R1</math>. The resulting matrix is <math>\begin{bmatrix} 1 &amp; 1/2 &amp; 4/3 &amp; 1/2 \\ 0 &amp; 7/2 &amp; 23/3 &amp; -3/2 \\ 1 &amp; 2/7 &amp; -1 &amp; -4/7 \end{bmatrix}</math>.</p>	<p>Calculator screen showing the third row operation: <math>R3 - R1</math>. The resulting matrix is <math>\begin{bmatrix} 1 &amp; 1/2 &amp; 4/3 &amp; 1/2 \\ 0 &amp; 7/2 &amp; 23/3 &amp; -3/2 \\ 0 &amp; -3/14 &amp; -7/3 &amp; -15/14 \end{bmatrix}</math>.</p>
<p>Calculator screen showing the fourth row operation: <math>R3 \times 14</math>. The resulting matrix is <math>\begin{bmatrix} 1 &amp; 1/2 &amp; 4/3 &amp; 1/2 \\ 0 &amp; 7/2 &amp; 23/3 &amp; -3/2 \\ 0 &amp; -3 &amp; -38 &amp; -15 \end{bmatrix}</math>.</p>	<p>Calculator screen showing the fifth row operation: <math>R3 / 7</math>. The resulting matrix is <math>\begin{bmatrix} 1 &amp; 1/2 &amp; 4/3 &amp; 1/2 \\ 0 &amp; 1 &amp; 98/9 &amp; 5 \\ 0 &amp; -3 &amp; -38 &amp; -15 \end{bmatrix}</math>.</p>
<p>Calculator screen showing the sixth row operation: <math>R3 + 3R2</math>. The resulting matrix is <math>\begin{bmatrix} 1 &amp; 1/2 &amp; 4/3 &amp; 1/2 \\ 0 &amp; 1 &amp; 98/9 &amp; 5 \\ 0 &amp; 0 &amp; -548/63 &amp; -38/7 \end{bmatrix}</math>.</p>	<p>Calculator screen showing the seventh row operation: <math>R3 \times -63/548</math>. The resulting matrix is <math>\begin{bmatrix} 1 &amp; 1/2 &amp; 4/3 &amp; 1/2 \\ 0 &amp; 1 &amp; 98/9 &amp; 5 \\ 0 &amp; 0 &amp; 1 &amp; 171/274 \end{bmatrix}</math>.</p>

