



## Gaussian elimination calculator



This online calculator will help you to solve a system of linear equations using Gauss-Jordan elimination.

Using this online calculator, you will receive a detailed step-by-step solution to your problem, which will help you understand the algorithm how to solve system of linear equations by Gauss-Jordan elimination.

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Calculator Guide

### Linear equations solver: Solving by Gaussian Elimination.

The number of equations in the system: 3 ▼

Change the names of the variables in the system

Fill the system of linear equations:

$$1 x_1 + 1 x_2 + -1 x_3 = -2$$

$$2 x_1 + -1 x_2 + 1 x_3 = 5$$

$$-1 x_1 + 2 x_2 + 2 x_3 = 1$$

Solve the system

You can input only integer numbers, decimals or fractions in this online calculator (-2.4, 5/7, ...). More in-depth information read at [these rules](#).

### Solution:

$$x_1 + x_2 - x_3 = -2$$

$$2x_1 - x_2 + x_3 = 5$$

$$-x_1 + 2x_2 + 2x_3 = 1$$

Rewrite the system in matrix form and solve it by Gaussian Elimination (Gauss-Jordan elimination)

$$\left( \begin{array}{ccc|c} 1 & 1 & -1 & -2 \\ 2 & -1 & 1 & 5 \\ -1 & 2 & 2 & 1 \end{array} \right)$$

$R_2 - 2 R_1 \rightarrow R_2$  (multiply 1 row by 2 and subtract it from 2 row);  $R_3 + 1 R_1 \rightarrow R_3$  (multiply 1 row by 1 and add it to 3 row)

$$\left( \begin{array}{ccc|c} 1 & 1 & -1 & -2 \\ 0 & -3 & 3 & 9 \\ 0 & 3 & 1 & -1 \end{array} \right)$$

$R_2 / -3 \rightarrow R_2$  (divide the 2 row by -3)

$$\left( \begin{array}{ccc|c} 1 & 1 & -1 & -2 \\ 0 & 1 & -1 & -3 \\ 0 & 3 & 1 & -1 \end{array} \right)$$

$R_1 - 1 R_2 \rightarrow R_1$  (multiply 2 row by 1 and subtract it from 1 row);  $R_3 - 3 R_2 \rightarrow R_3$  (multiply 2 row by 3 and subtract it from 3 row)

2/3

If you want to contact me, probably have some question write me email on [support@onlinemschool.com](mailto:support@onlinemschool.com)