Sure! Gaussian elimination is a common method used to solve systems of linear equations. It works by transforming the system into an equivalent system that has a simpler form, making it easier to solve.

Here are the general steps for Gaussian elimination:

1. Write the system of equations in augmented matrix form.

2. Use row operations to transform the matrix into row-echelon form. Row-echelon form means that the matrix has the following properties:

   - The first nonzero element in each row (called a pivot) is to the right of the pivot in the row above it.
   - All rows consisting entirely of zeros are at the bottom of the matrix.
   - The pivots are all equal to 1.

   The three types of row operations are:

   - Interchange two rows
   - Multiply a row by a nonzero constant
   - Add a multiple of one row to another row

3. Use back substitution to solve for the variables. Start with the last equation and solve for its variable, then substitute that value into the second-to-last equation and solve for its variable, and so on until you have solved for all the variables.

Here's an example:

Solve the system of equations:

```
```

2x + y - z = 8

-3x - y + 2z = -11

-2x + y + 2z = -3

```

Step 1: Write the system in augmented matrix form:

```
[2 1 -1 | 8]

[-3 -1 2 | -11]

[-2 1 2 | -3]
```

Step 2: Transform the matrix into row-echelon form:

```
[ 2  1 -1 |  8 ]

[ 0 -1  1 |  5 ]

[ 0  0  3 |  7 ]
```

To achieve row-echelon form, we used the following row operations:

- Add 1.5 times row 1 to row 2

- Add 1 times row 1 to row 3

- Multiply row 2 by -1

Step 3: Use back substitution to solve for the variables:

```

z = 7/3

-y + z = 5

y = 5 - z = 5 - (7/3) = 8/3

2x + y - z = 8

2x + (8/3) - (7/3) = 8

2x + 1 = 8

2x = 7

x = 7/2

```

So the solution to the system of equations is `x = 7/2`, `y = 8/3`, and `z = 7/3`.
```