Gauss-Jordan Elimination (to reduced echelon form)

There are two methods to complete this process.

Method 1

Complete the Gaussian Elimination to echelon form.

For each entry in the diagonal, starting at the **bottom** and working **up**:

Place a square around the entry, and a circle around all numbers in the same column above the entry. Change each circled entry to a 0. Note: the base row does not actually change during this operation.

When you reach the top of the diagonal, you are in reduced echelon form.

Method 2

For each entry on the diagonal:

1. Put a square around the active entry, and a circle around all entries in the same column that are above and below the active entry.
2. If the entry is a 0, you may swap this row with any row **below** it. Resume with the new row as your base row.
3. Change the active entry to a 1.
4. Change each circled entry to a 0. Note: the base row does not actually change during this operation.

When you reach the bottom of the diagonal, you are in reduced echelon form. The solution can be read directly from the last column.

When you've reached reduced echelon form, take a look at the matrix portion on the left side of the bar:

1. If you have 1's on the diagonal and 0's everywhere else, then you have a unique solution.
2. If you have a row with 0's and the last column of that row does not have a 0, then you have an inconsistent system with no solution.
3. If you have a row with 0's and the last column of that row has a zero, then you have a dependent system with infinite solutions.