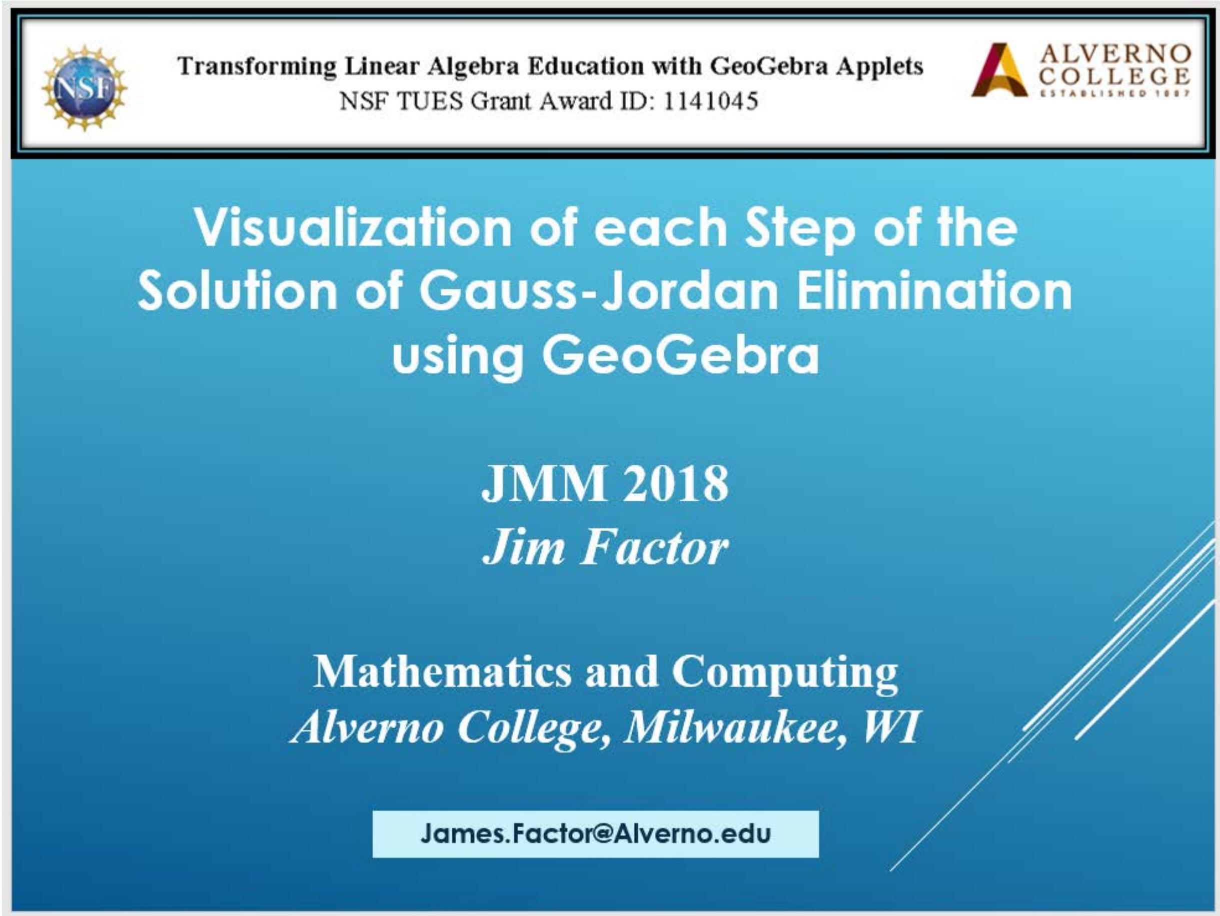

This presentation used an interactive GeoGebra applet to show the visual geometric changes for each step of the Gaussian–Jordan elimination process as the solution unfolds in achieving reduced row echelon form. The cases of one solution, no solution, and infinite solutions (linear and planar) will be illustrated dynamically.

This applet, along with others, is freely available for instructor demonstration and student discovery of the meaning of linear algebra concepts. Associated activities have been designed to guide students in using the interactive applets to enhance learning.

These resources are in the GeoGebra Book entitled *Transforming Linear Algebra Education with GeoGebra* located at https://www.geogebra.org/m/XnfUWvvp

Note this GeoGebra Book is presently being populated with other applets and activities covering a first course in Linear Algebra. It will be completed by September 1, 2018.

Below are a collection of systems of equations that were presented at the 2018 JMM.

Transforming Linear Algebra Education with GeoGebra Applets

NSF TUES Grant Award ID: 1141045

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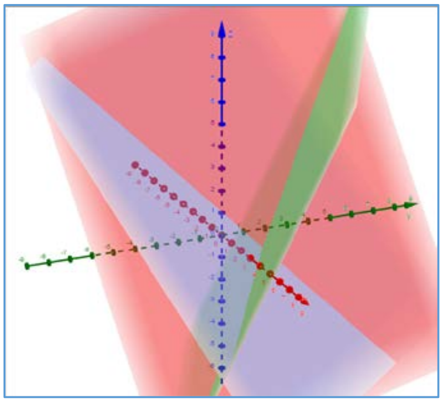
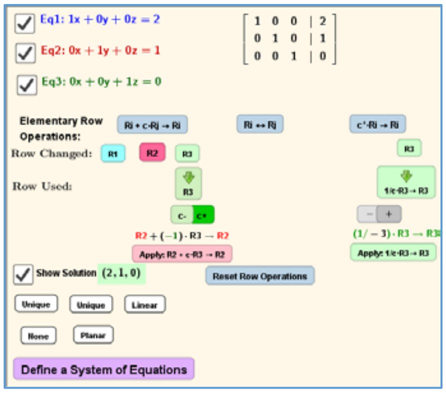
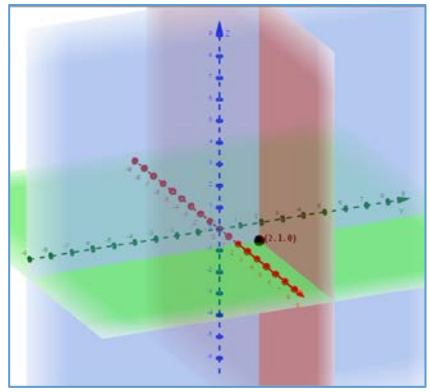
Gauss-Jordan Elimination Examples

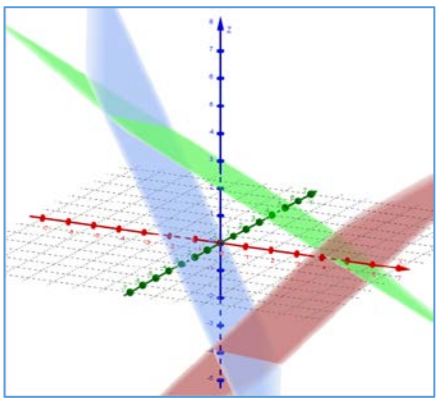
Unique solution

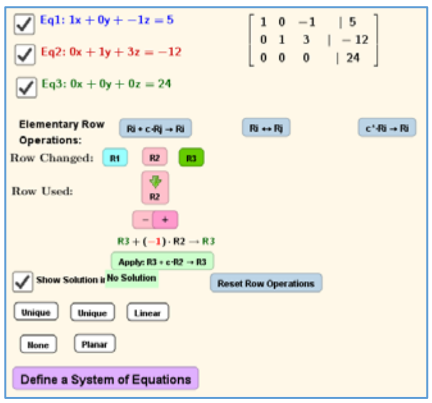


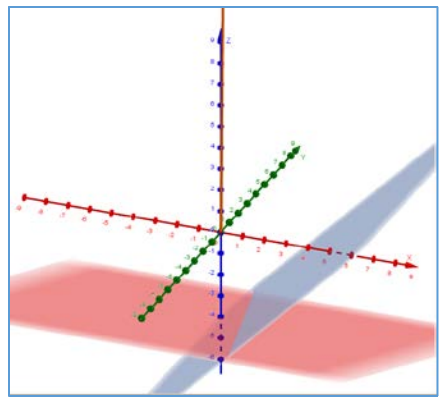




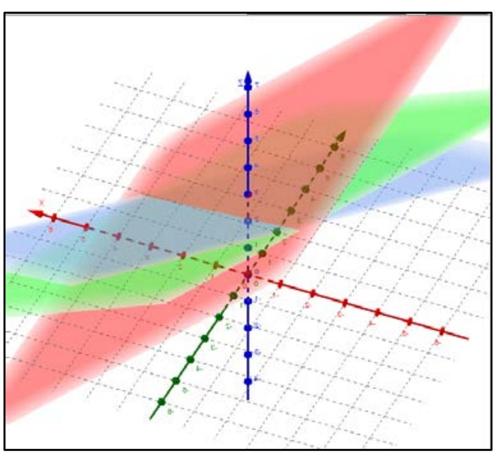
No Solution

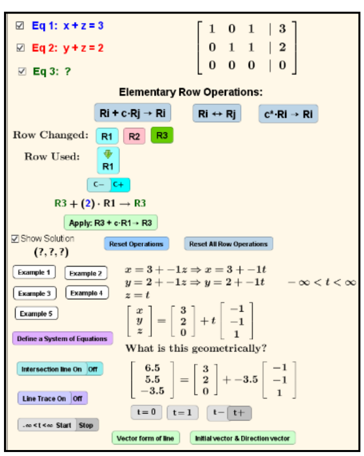


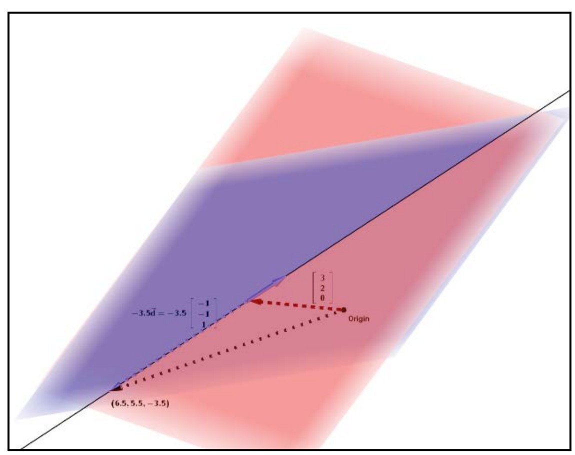




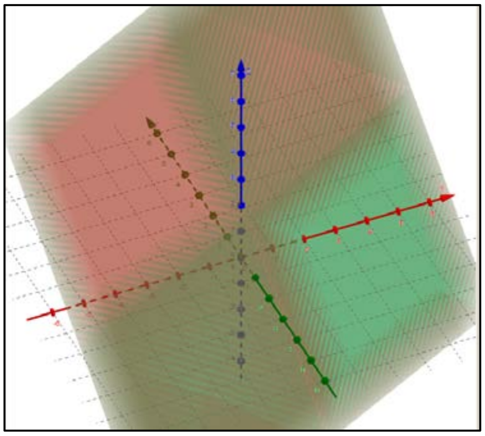
Infinitely many solutions (Linear)

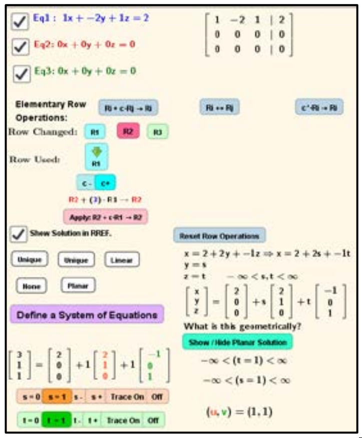


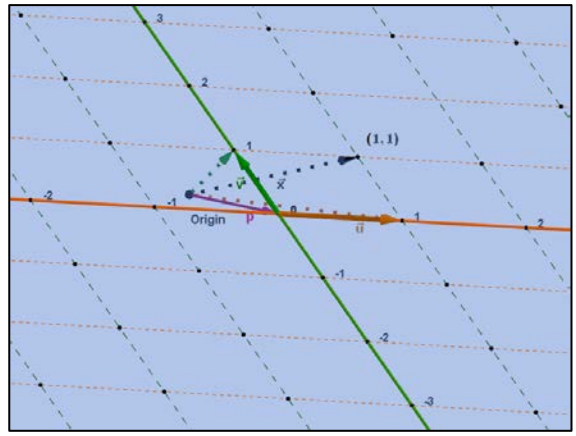




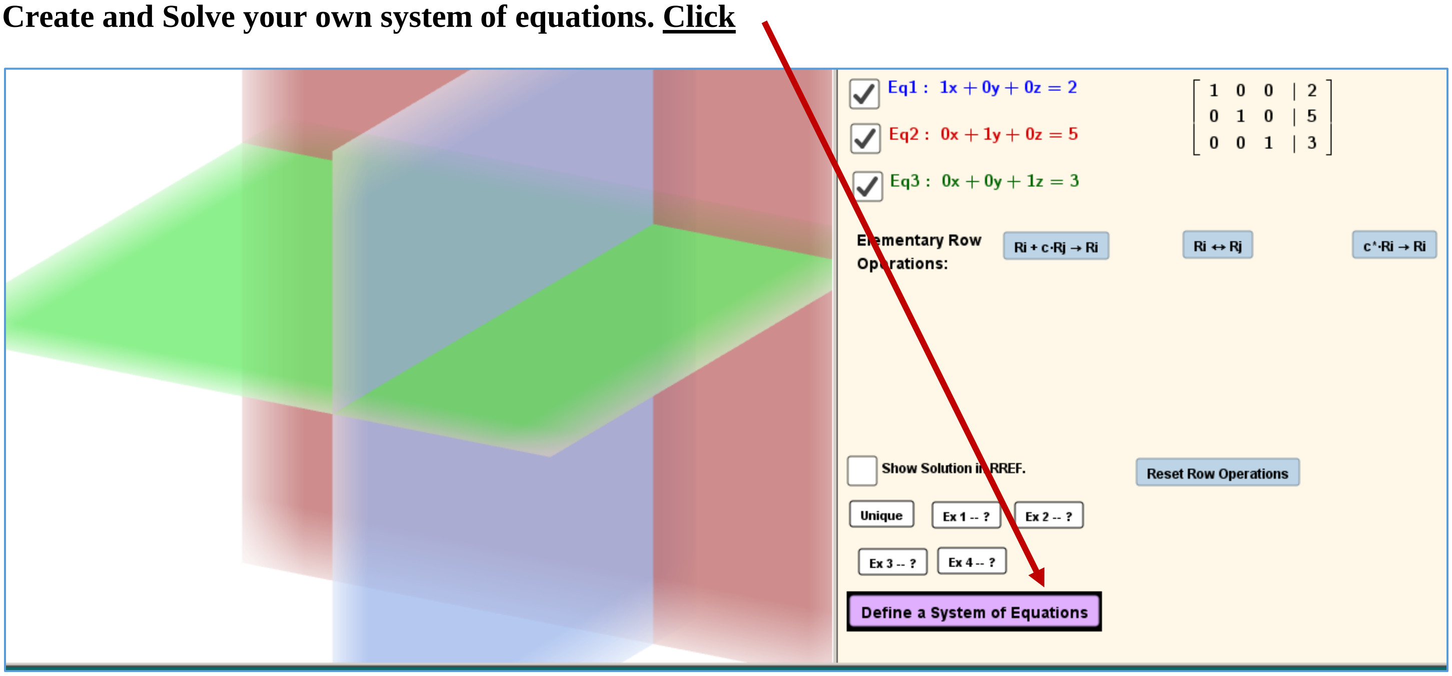
<u>Infinitely many solutions (Planar)</u>





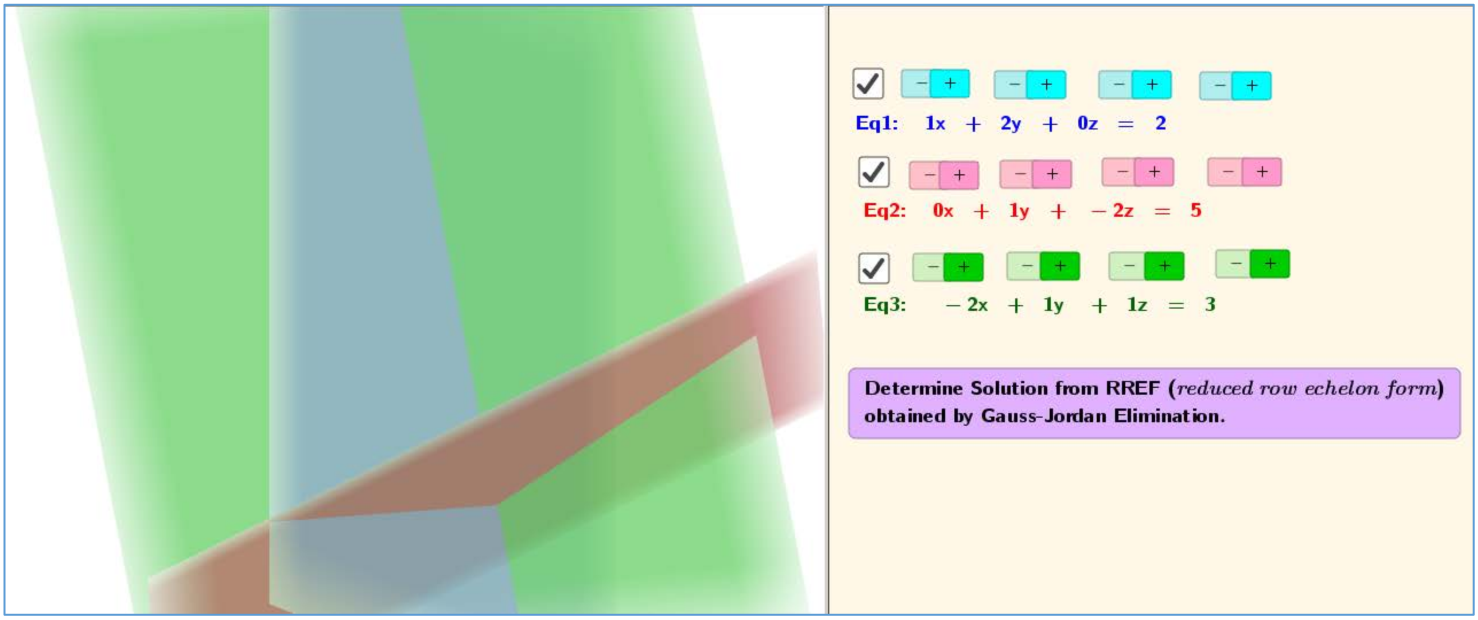


Create and Solve your own system of equations. <u>Click</u>



Note on the page arrived at to **Define a System of Equations** any system of equations can be created. Once it is defined then you are taken back to the home page where it is solved using the Gauss-Jordan Elimination Process as was done previously.

Consider this example



When

is clicked, we arrive where the system of equations id solved