

ChEE 201
Fall 2005
University of Arizona
Computer HW 6
Solving Linear Systems of Equations

This homework is to familiarize students with how to solve a system of linear equations by hand. Students should not use a linear equation solver for this homework, but should instead write out each step so they will be able to follow our discussion of gaussian elimination in lecture since this homework will be referred to. Students should NOT write a VBA program or use Excel for this problem either.

Learning Objectives:

At the end of this homework, students will be able to:

- 1) use the method of combining equations to solve systems of linear equations

Solve the system of equations below

$$x_1 + 2x_2 - 3x_3 + 4x_4 = 4$$

$$2x_1 - x_2 - 4x_3 + 2x_4 = 1$$

$$-4x_1 + 2x_2 + 3x_3 + 2x_4 = 2$$

$$-x_1 - 3x_2 + x_3 - 2x_4 = -2$$

Students should not switch any of the rows with other rows (which will be allowed when we start performing gaussian elimination). Also, students should not switch columns. As discussed in the handout for this homework, the students should instead work towards transforming their set of equations into the upper triangular form.

For their final answers, students should put a box around their upper triangular form of the system of equations and also list the values for x_1 , x_2 , x_3 , and x_4 .