

Complete the following 6 problems using Maple.

1. Use Jacobi's method to solve a 2x2 linear system.
2. Use the Gauss-Seidel method to solve a 2x2 linear system.
3. Use one of the methods to solve a 5x5 linear system.
4. Find an example for which one of the methods diverges.
5. Check your answers to questions 1-4 using direct methods.
6. Solve the 5x5 Lights Out game. (website is www.whitman.edu/mathematics/lights_out/).
By 'solve,' I mean given an initial configuration (either one of your creation or one given to you on the website above), use linear algebra to find which buttons need to be pushed to achieve a final configuration with no lights on. On the website, your final configuration should consist of all red squares. When you solve the system, you should:
 - a. Figure out how many solutions there are (how many ways can you get from the initial configuration to a configuration with no lights on?).
 - b. Check one of your solutions by applying it to the initial configuration on the website.

Some useful commands can be found in the Maple file on the P drive:

P:/Class/Math/Smith/Math224Fa11/UsefulMapleCommands.mw.