

1 Assignment 2 - Solving Sets of Linear Equations - Due to December 25, 2011

1. Solve the following linear system by using *Gauss-Jordan Method*;

$$\begin{aligned}x_1 + 4x_2 - 3x_3 + 5x_4 &= 45 \\-x_1 - x_2 + 12x_3 + x_4 &= -15 \\3x_1 + 13x_2 - 8x_3 + 18x_4 &= 151 \\2x_1 + 11x_2 + 5x_3 + 17x_4 &= 122\end{aligned}$$

- (a) Solve by hand.
(b) Solve by MATLAB.

Hint: Modify the MATLAB codes (`uptrbk.m` and/or `GEPivShow.m`).

2. Solve the following linear system by using *Gauss-Seidel Iteration*;

$$\begin{aligned}6x + y - 3z &= -7 \\3x + 5y + z &= -4 \\4x - y - 2z &= -2\end{aligned}$$

- Start by $P_0 = (1, 2, 2)$.
- Tabulate the iteration.
- Compare with the *Jacobi Iteration*.

Hint: Modify the MATLAB code for *Jacobi Iteration* (`jacobi.m`).