3. Solving Small Numbers of Equations

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3.1 Exercises

Exercises: Gauss Elimination Method

Exercise 3.1 Given the system of linear equations

$$
\begin{aligned}
5.3(5x_2 - 13) + 32.13x_3 &= 698.1 - 13.53x_1 + 12.2x_4 \\
7.32x_1 - 24.6x_3 + 5.65x_2 + 4x_4 &= 560 \\
5.32(7x_3 + 12.2x_1) &= 5.75x_2 + 989 - 2.21x_4 \\
12.52x_1 - 3.5x_2 + 8.78x_3 - 6.2x_4 - 485 &= 0
\end{aligned}
$$

i. Transform the system of linear equations in matrix form of $\mathbf{Ax} = \mathbf{b}$.

ii. Solve the system of linear equations using Cramer's rule.

Exercise 3.2 Given the system of linear equations

$$7.14(5x_4 + 4.1x_1) = 7.23x_3 + 832 - 3.14x_2$$
$$16.67x_1 - 19.71x_3 - 26.9x_2 + 7x_4 = 658$$
$$3.65(7.1x_3 - 11) + 17.5x_2 = 682.85 + 23.53x_4 - 24.3x_1$$
$$47.2x_1 - 7.3x_2 + 9.72x_3 - 4.9x_4 - 949 = 0$$

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