Random Problem

6.2.1 Reducing a System of Linear Equations to an Upper Triangular System

Original Equation

Next

$$\begin{array}{ll} & -2\chi_0 + 3\chi_1 + 2\chi_2 + 1\chi_3 = 0 \\ \text{Row2} - \square \times \text{Row 1} & 4\chi_0 + -9\chi_1 + -3\chi_2 + -5\chi_3 = 8 \\ \text{Row3} - \square \times \text{Row 1} & 2\chi_0 + 6\chi_1 + -8\chi_2 + 9\chi_3 = -33 \\ \text{Row4} - \square \times \text{Row 1} & -4\chi_0 + 12\chi_1 + 11\chi_2 + 4\chi_3 = 14 \end{array}$$

6.2.2 Appended Matrix

Original Appended Matrix

Next

$$\begin{array}{ll} & \left[\begin{array}{cccc|c} -2 & 3 & 2 & 1 & 0 \\ 4 & -9 & -3 & -5 & 8 \\ 2 & 6 & -8 & 9 & -33 \\ -4 & 12 & 11 & 4 & 14 \end{array}\right] \\ \text{Row2} - \square \times \text{Row 1} & \\ \text{Row3} - \square \times \text{Row 1} & \\ \text{Row4} - \square \times \text{Row 1} & \end{array}$$

6.2.3 Gauss Transforms

Original Appended Matrix

Next

$$\left[\begin{array}{cccc} 1 & 0 & 0 & 0 \\ \square & 1 & 0 & 0 \\ \square & 0 & 1 & 0 \\ \square & 0 & 0 & 1 \end{array}\right] \left[\begin{array}{cccc|c} -2 & 3 & 2 & 1 & 0 \\ 4 & -9 & -3 & -5 & 8 \\ 2 & 6 & -8 & 9 & -33 \\ -4 & 12 & 11 & 4 & 14 \end{array}\right]$$

6.2.4 Separate Forward Substitution

Original Matrix A

Next

$$\left[\begin{array}{cccc} 1 & 0 & 0 & 0 \end{array}\right] \left[\begin{array}{cccc} -2 & 3 & 2 & 1 \end{array}\right]$$

$$\left[\begin{array}{|ccc} \square & 1 & 0 & 0 \\ \square & 0 & 1 & 0 \\ \square & 0 & 0 & 1 \end{array}\right] \left[\begin{array}{|cccc} 4 & -9 & -3 & -5 \\ 2 & 6 & -8 & 9 \\ -4 & 12 & 11 & 4 \end{array}\right]$$