

Solve the LPP by Penalty (Big-M) method

$$\begin{aligned} \text{Max } Z &= -2X_1 - X_2 \\ \text{Subject to } 3X_1 + X_2 &= 3 \\ 4X_1 + 3X_2 &\geq 6 \\ X_1 + 2X_2 &\leq 4 \\ X_1 \geq 0, X_2 &\geq 0 \end{aligned}$$

Solve the LPP by Big-M/Penalty method

$$\begin{aligned} \text{Maximize } R &= 5X - 2Y - Z \\ 2X + 2Y - Z &\geq 2 \\ \text{Subject to } 3X - 4Y &\geq 3 & X, Y, Z \geq 0 \\ Y + 3Z &\geq 5 \end{aligned}$$

Use penalty (or Big 'M') method to

$$\begin{aligned} \text{Minimize } z &= 4x_1 + 3x_2 \\ \text{subject to the constraints :} \\ 2x_1 + x_2 &\geq 10, \quad -3x_1 + 2x_2 \leq 6 \\ x_1 + x_2 &\geq 6, \quad x_1 \geq 0 \text{ and } x_2 \geq 0. \end{aligned}$$