

3. Solve the following LPs using the simplex method. Also, sketch the feasible region and draw the path of feasible solutions.

a. Maximize  $Z = x_1 + 2x_2$

Subject to  $\begin{cases} 3x_1 + x_2 \leq 24 \\ x_1 + x_2 \leq 14 \\ x_i \geq 0 \end{cases}$

b. Maximize  $Z = 4x_1 + 2x_2$

Subject to  $\begin{cases} x_1 - x_2 \leq 1 \\ -x_1 + x_2 \leq 3 \\ x_1 + x_2 \leq 5 \\ x_i \geq 0 \end{cases}$