

# CIVENG 3C03 Assignment 1

Raeed Hassan  
hassam41

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## Question 1

Using the graphic method of solution, find the optimal solution for the following LP model:

Minimize:

$$Z = 2200 - 7X_1 - 2X_2$$

Subject to:

$$X_1 \leq 100 \quad (1)$$

$$3X_1 + 5X_2 \leq 900 \quad (2)$$

$$4X_1 + 2X_2 \leq 600 \quad (3)$$

$$X_1 \geq 0, X_2 \geq 0$$

The graphical solution to this problem is found in Figure 1. The optimal value for  $Z$  is approximately 184.857, when  $X_1 = 85.714$  and  $X_2 = 128.571$ .

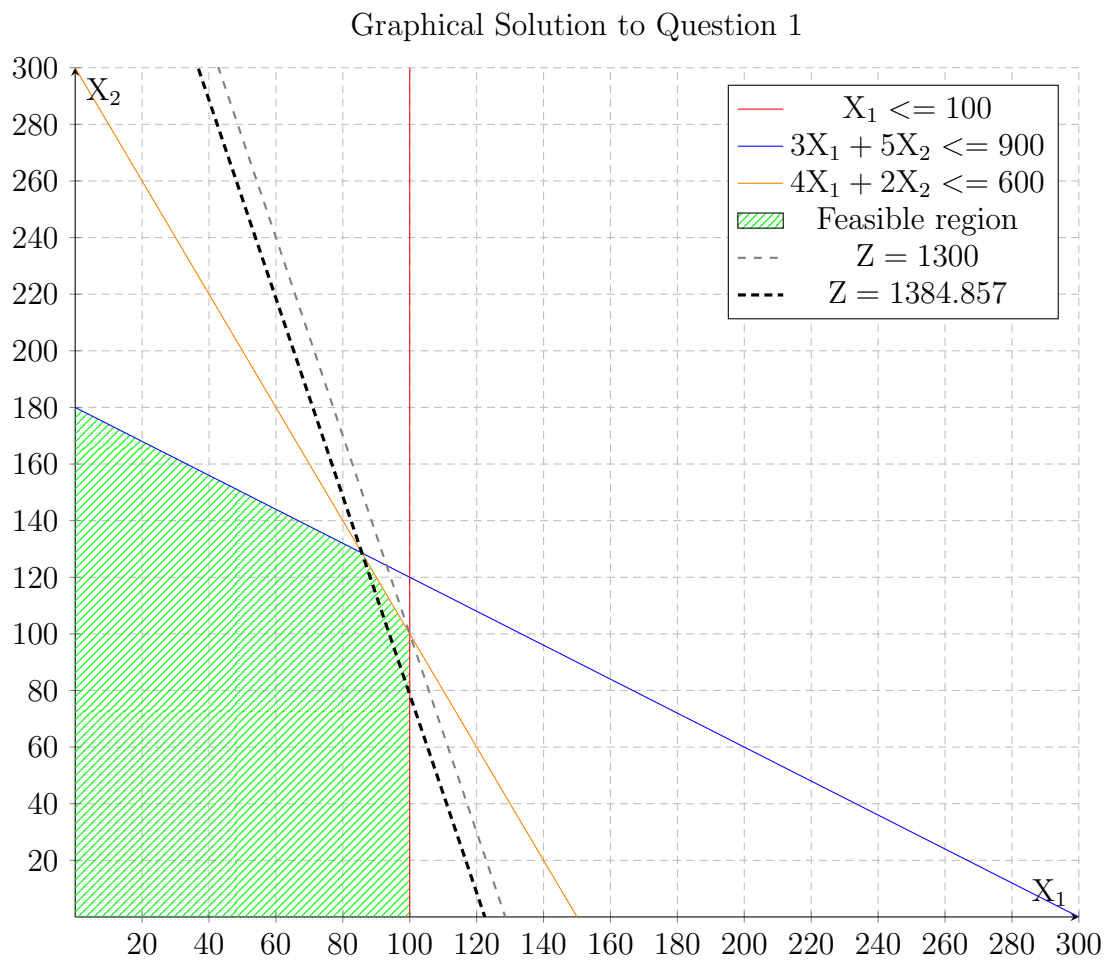


Figure 1: Question 1: Graphical Solution

## Question 2

LP Model  $z = 5400 - 15X_1 - 20X_2 - 10X_3$

$$1000 = 6X_1 + 8X_2 + 4X_3$$

$$X_1 \leq 50$$

## Question 3