

# 1.041/1.200 Spring 2024: Recitation 11

Date: April 29, 2:00 PM

## 1 Problem 1 : Branch and Bound Method

Solve the following integer linear program by branch and bound method.

$$z^* = \max z = 5x_1 + 8x_2$$

subject to:

$$\begin{aligned}x_1 + x_2 &\leq 6 \\5x_1 + 9x_2 &\leq 45 \\x_1, x_2 &\geq 0 \text{ and are integers.}\end{aligned}$$

## 2 Problem 2 : Simplex Method

Solve the following linear program by Simplex method.

$$z^* = \max z = 3x + 2y$$

subject to:

$$\begin{aligned}2x + y &\leq 18 \\2x + 3y &\leq 42 \\3x + y &\leq 24 \\x, y &\geq 0\end{aligned}$$

### **3 Quiz 2 Review**

What you should not focus on: computationally heavy topics

1. Neural Networks and gradient descents
2. Simplex method

What are encouraged to look into:

1. Q-learning and update. Similar to the PSet
2. Graphical methods to solve LP and IP
3. Markov decision process
4. Branch-and-bound method

The Spring 2023 Quiz 2 examples and solutions have been posted on Piazza.