

Tutorial 1

For each of the following problems:

- a. Draw the feasible region.
- b. What are the extreme points ?
- c. Solve the problem, or determine that solution does not exist

1) $\max 5x_1 + 4x_2$

s.t. $3x_1 + 2x_2 \leq 120$

$$x_1 + x_2 \leq 50$$

$$x_1, x_2 \geq 0$$

2) $\max 5x_1 + 4x_2$

s.t. $3x_1 + 2x_2 \leq -20$

$$x_1 + x_2 \leq 50$$

$$x_1, x_2 \geq 0$$

3) $\max 5x_1 + 4x_2$

s.t. $3x_1 + 2x_2 \geq 120$

$$x_1 + x_2 \geq 50$$

$$x_1, x_2 \geq 0$$

4) $\min 5x_1 + 4x_2$

s.t. $3x_1 + 2x_2 \geq 120$

$$x_1 + x_2 \geq 50$$

$$x_1, x_2 \geq 0$$

- Is the optimal solution unique?

