

Name: \_\_\_\_\_

ID: \_\_\_\_\_

a) Given the following primal problem:

$$\text{Maximize } Z = 3x_1 + 2x_2$$

Subject to:

$$3x_1 + x_2 \leq 2$$

$$x_1 + x_2 \leq 6$$

$$5x_1 + 3x_2 \leq 27$$

$$x_1 \geq 0, x_2 \geq 0$$

Question 1: Solve this problem graphically.

(6 M)

Question 2: Write the primal problem in Standard form.

(4 M)

Question 3: Use the simplex method to solve the primal problem.

(8 M)

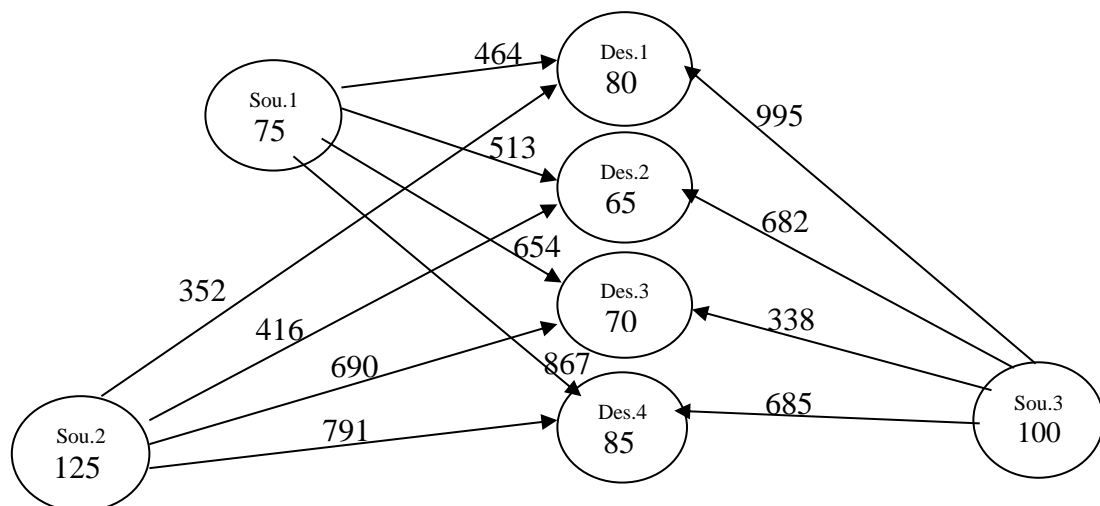
Question 4: Construct the dual of the primal problem.

(5 M)

Question 5: Use the Big\_M method to solve the dual problem in Q4. (M=100) (3 + 4 M)

Not: Stop in the second iteration (2 tables).

b) Given the following Transportation problem:



Question 6:

(3 + 7 M)

1. Formulate the problem as a transportation model.
2. Use Least-Cost method to obtain an initial basic feasible solution.