State all the assumptions and show all the work. Define your decision variables clearly. Briefly explain the constraints and objectives functions and define all unit of measure.

Question 5

Consider the following linear programming problem:

Max x + 3y

s.t. –x + y < 2

x + 3y < 21

x – y < 3

x > 0

y > 0

a) Solve LP using the Simples Method. What is the optimal solution? What is the optimal objective function value?

b) Plot the feasible region. Label (in order) the corner points you visited during the simplex method. What is the basic feasible solution at each of these points?

c) Add the constraint x + y > 1 to the LP problem. Set up the initial tableau for this new problem and perform one full iteration of the simplex method.