Please state all your assumptions and show all your work. Define your decision variables clearly. Briefly explain your constraints and objective functions. Define all units of measure (e.g., hours, $, $/hour, etc.) Explain what software package you used (e.g., LINDO, LINGO, EXCEL solver, etc.)For EXCEL solver, be sure to give a separate statement of the formulation /input..

Use an equation editor for the equations. If you cannot get one, then use subscripts to indicate indexing. Graphs should be detailed and easy to read.

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Question

Consider the linear program

Max 3x1 + 2x2

s.t.

15x1 + 2x2 ≤ 8

2x1 + x2 ≤ 10

x1, x2 ≥ 0

a) Solve this problem using the Simplex method. Keep a record of the value of the objective function at each extreme point.

b) Formulate and solve the dual of this problem using the graphical procedure.

c) Compute the value of the dual objective function for each extreme-point solution of the dual problem.

d) Compare the values of the objective function for each primal and dual extreme-point solution.

e) Can a dual feasible solution yield a value less than a primal feasible solution? Can you state a result concerning bounds on the value of the primal solution provided by any feasible solution to the dual problem?