Advanced Automation and Control

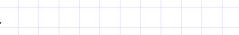
Optimization Part

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Exercise 1

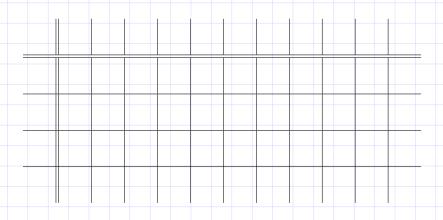
1. Rewrite the optimization problem in **standard form**. Depict the tree associated to the MILP.

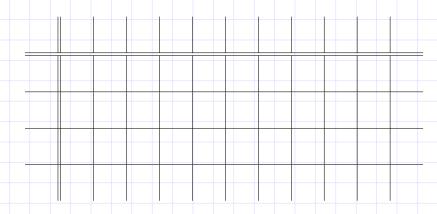
2. Write down the relaxed problem at node 0 and the optimization problem for Phase 1.

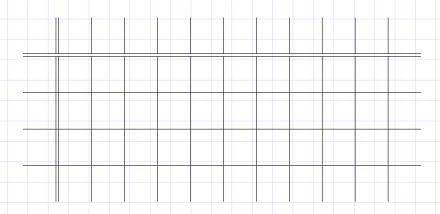


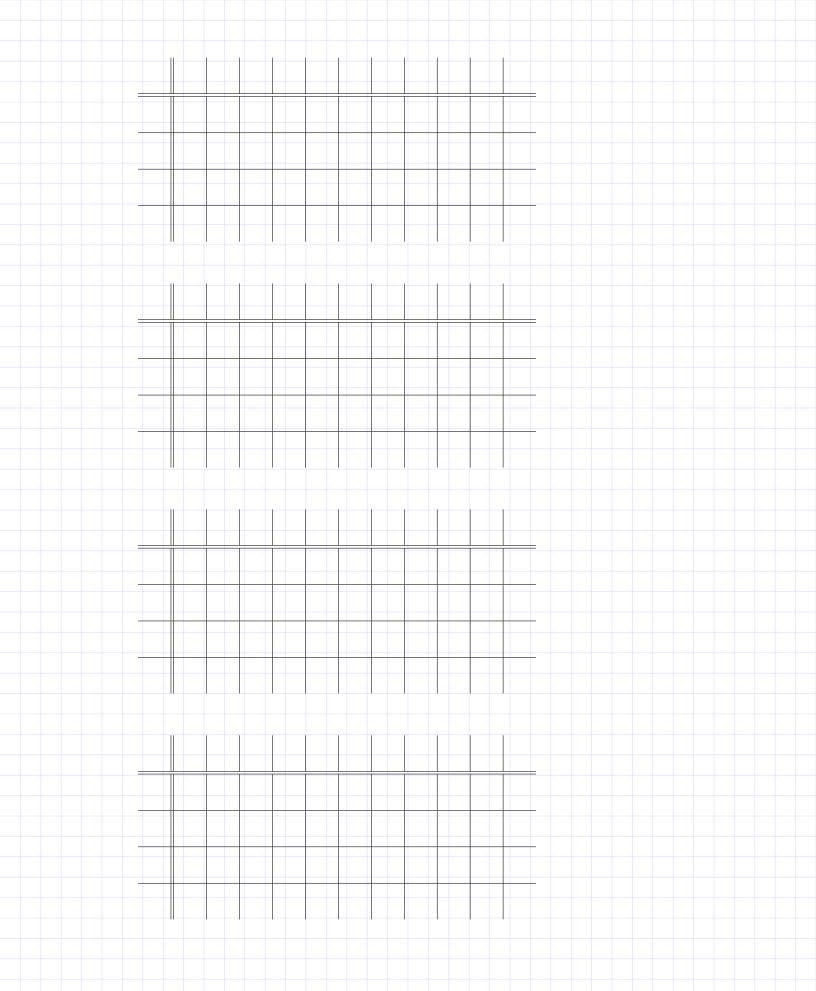
3. Simplex algorithm at node 0

(a) Solve Phase 1

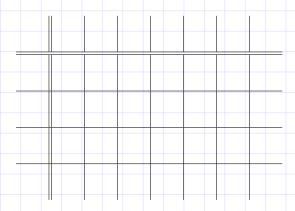


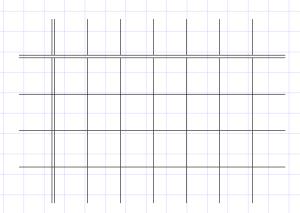






(b) Simplex algorithm Phase 2 (complete from left to right and from up to down)





- (c) The optimal cost is
- (d) The optimal solution is x =
- (e) Is this solution feasible for the original MILP (Yes or No and Why)?
- (f) Is this solution optimal for the original MILP (Yes or No and Why)?

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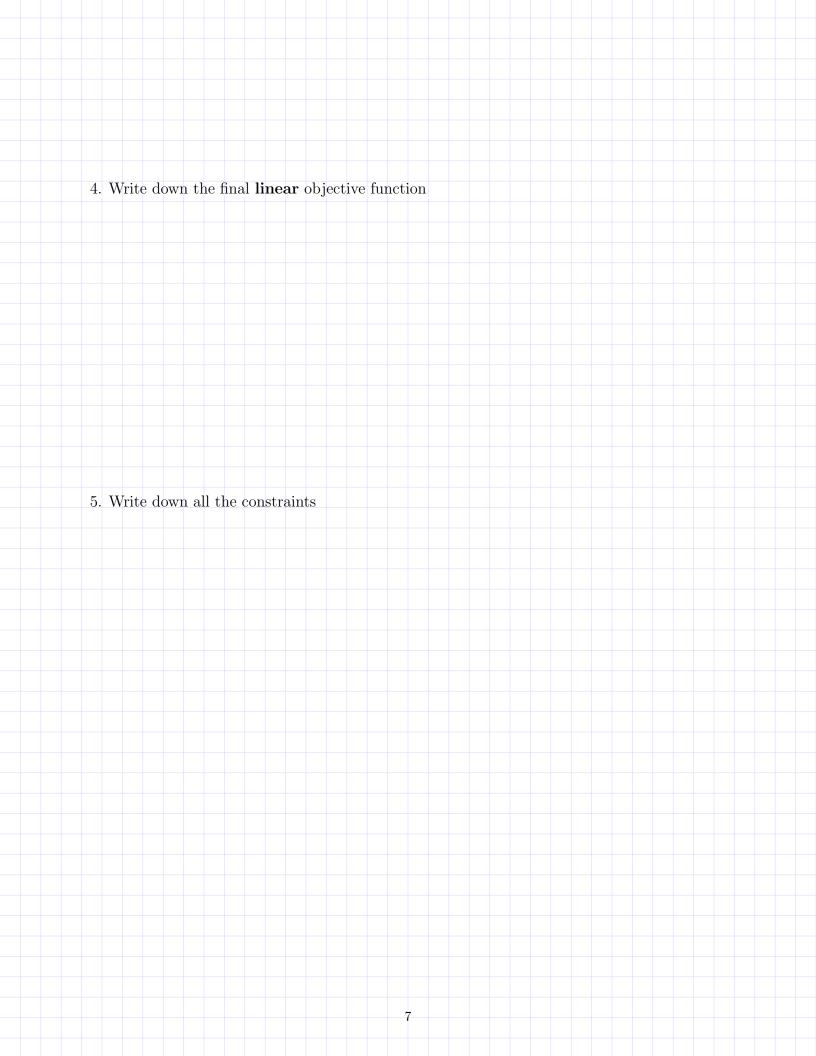
After examining node 0 did we find the optimal solution (Yes, No, Why)?

If Yes:

(a) the optimal cost for the MILP is

(b) the optimal solution for the MILP is x =





Exercise 3

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