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##linear programming problem (production)
##
## x is number of bicycles profit is 180
## y is number of tricycles profit is 220
##minimize z = 180*x+220*y
##subject to 6*x+4*y>=120; 3*x+10*y>=180; these are m/c-hr constraints
##x>0;y>0
clc();
clear;
c = [180;220]; ## function to be optimized
A = [6 4;3 10];## matrix of constraint coeff
b = [120;180];## matrix of constraint rhs
lb = [0;0]; ## lower bound of variables
ub = []; ## upper bound of variables
ctype = "UU"; ##for <= inequalities use U; for >= inequality use L;
##equality constraint demands "SS"
vartype = "CC"; ## continuous variable uses C; integer variable uses I;
s = -1; #for maximization
param.msglev = 1; ## message level
param.itlim = 100; ## limit for the number of iterations
[xmax,fmax] = glpk(c,A,b,lb,ub,ctype,vartype,s,param);
disp("Number of bicycles to be produced: ")
xmax(1)
disp("Number of tricycles to be produced: ")
xmax(2)
disp("Maximum profit expected is: ")
fmax

```