A toy manufacturing company produced two types of toys A and B, sold at Rs. 25 and Rs. 20 respectively. There are 2000 resource units available everyday from which the toy A requires 20units while toy B requires 12units. Both of these toys require a production time of 5 minutes. Total working hours are 9hours a day. What should be the manufacturing quantity for each of the pipes to maximize the profits?

max(Z) = 25X + 20Y : Objective Function

Where, X : Units of Pipe A and Y : Units of Pipe B

Contsraints

1. 20X +12Y <= 2000
2. 5X + 5Y <= 540

#implementation in R

library(lpSolve)

#setting the coefficient of decision variable

objective.in = c(25,20)

#constraint matrix

const.mat = matrix(c(20,12,5,5,nrow=2,byrow=T))

#defining constraints

const\_time = 540

const\_res = 2000

#RHS for constraints

const.rhs = c(const\_res, const\_time)

#direction for constraints

const.dir = C(“<=”, “<=”)

#finding the optimal solution

opt = lp(direction = “max”, objective.in, const.mat, const.dir, const.rhs)

summary(opt)

#values of X and Y

opt$solution

#value of objective function at optimal point

opt$objval