Aðgerðagreining
Heimavekefni 1

January 16, 2018

6)

A group of young entrepreneurs earns a (temporarily) steady living by acquiring inadequately supervised items from electronics stores and re-selling them. Each item has a street value, a weight, and a volume; there are limits on the numbers of available items, and on the total weight and volume that can be managed at one time. Formulate as a linear programming problem that will help to determine how much of each item to pick up, to maximize one day's profit.

The following case is given by the table below,

	Value	Weight	Volume	Available
TV	50	35	8	20
radio	15	5	1	50
camera	85	4	2	20
CD player	40	3	1	30
VCR	50	15	5	30
camcorder	120	20	4	15

and by limits of 500 pounds and 300 cubic feet.

Gögn

- P = Mengi raftækja
- maxW = Hámarks þyngd
- maxV = Hámarks rými

Ákvörðunarbreytur

- D_j Verð($) raftækis j, fyrir hvert j ϵ P
- W_j Þyngd(pund) raftækis j, fyrir hvert j ϵ P
- V_j Rými(rúmfet) raftækis j, fyrir hvert j ϵ P
- A_j Fjöldi(stk.) tiltækra raftækja j, fyrir hvert j ϵ P
- E_j Fjöldi eftispurna fyrir raftæki j, ϵ P

Skorður

- $0 \leq A_j \leq E_j$
- $0 \leq \sum_{j \epsilon P} W_j \leq maxW$
- $0 \leq \sum_{j \epsilon P} V_j \leq maxV$

Markfall

$\underset{j \epsilon P}{Max}$ hagnaður $= \sum_{j \epsilon P} D_j A_j$