

Page 57. Read the problems in the text.

State the linear programming problem in the most straightforward way (probably not canonical, maybe not standard) using the given variables.

Use Linsolve to solve the problem. List its solutions (variables) and the optimal value (objective).

Ignore: slacks, extras, shadow prices, reduced costs.

2(4). Let $a = \#$ of type A machines,
 $b = \#$ of type B machines,
 $c =$ the total cost of the machines.

Part of setting up a problem is stating what the variables are. This is done here but you will have to do this on an exam. Pick descriptive names for your constraints, don't number them 1., 2., 3.,

Linear Programming Problem. Solution

$$a =$$

$$b =$$

$$c =$$

c should be between 100,000 and

200,000.

4(4). Let $c = \#$ acres of corn,
 $s = \#$ of acres of soybeans,
 $t = \#$ of acres of oats,
 $p =$ the net profit.

Linear Programming Problem. Solution

Maximize $p =$

with

$$c =$$

$$s =$$

$$t =$$

$$p =$$

p should be between 300 and 400.

8(4). Let $u =$ the amount invested in utilities,
 $e =$ amount in electronics,
 $b =$ amount in bonds.
 $i =$ the total interest returned.

Dividends = interest = return.

In Linsolve fractions aren't allowed: $(1/2)x$ must be entered $.5x$.

In SciLab you write $.5*x$ but in Linsolve you write $.5x$.

Linear Programming Problem. Solution

$$u =$$

$$e =$$

$$b =$$

$$i =$$

i should be between 10,000 and 12,000.

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8(2). Enter this problem with Notepad or your favorite word processor (set it to ASCII, text, unformatted or nondocument mode). Then run Linsolve and answer "y" to the question "Input from file (n,y)?".

Maximize $w = 2x + 4y$

with

$$1: 5x + 3y + 5z \leq 15$$

$$2: 10x + 8y + 15z \leq 40$$

$$x, y, z \geq 0$$

$$x =$$

$$y =$$

$$z =$$

$$w =$$

Answers should all be integers.

- Part of setting up a problem is describing your variables and constraints. This has been partly done here but on Exam 1, you must supply the descriptions.