6.4 Foundations of Math 11

p. 330 # 1, 3, 4

1. - each basket has at least 5 apples and at least 6 oranges
- apples cost 20¢ each and oranges cost 35¢ each
- budget allows no more than $7 per basket

a) a: apple $a \in W$
r: orange $r \in W$
} (whole numbers)

b) i) $a \geq 5$
ii) $r \geq 6$
iii) $0.20a + 0.35r \leq 7$

c) see graph paper, next page

d) $F = a + r$ (F: fruit)

3. - pop and juice in a vending machine - holds 240 cans
- at least 2 cans of juice sold for each can of pop
- juice is $1.00 and pop is $1.25

p: pop $p \in W$
j: juice $j \in W$
(whole numbers)

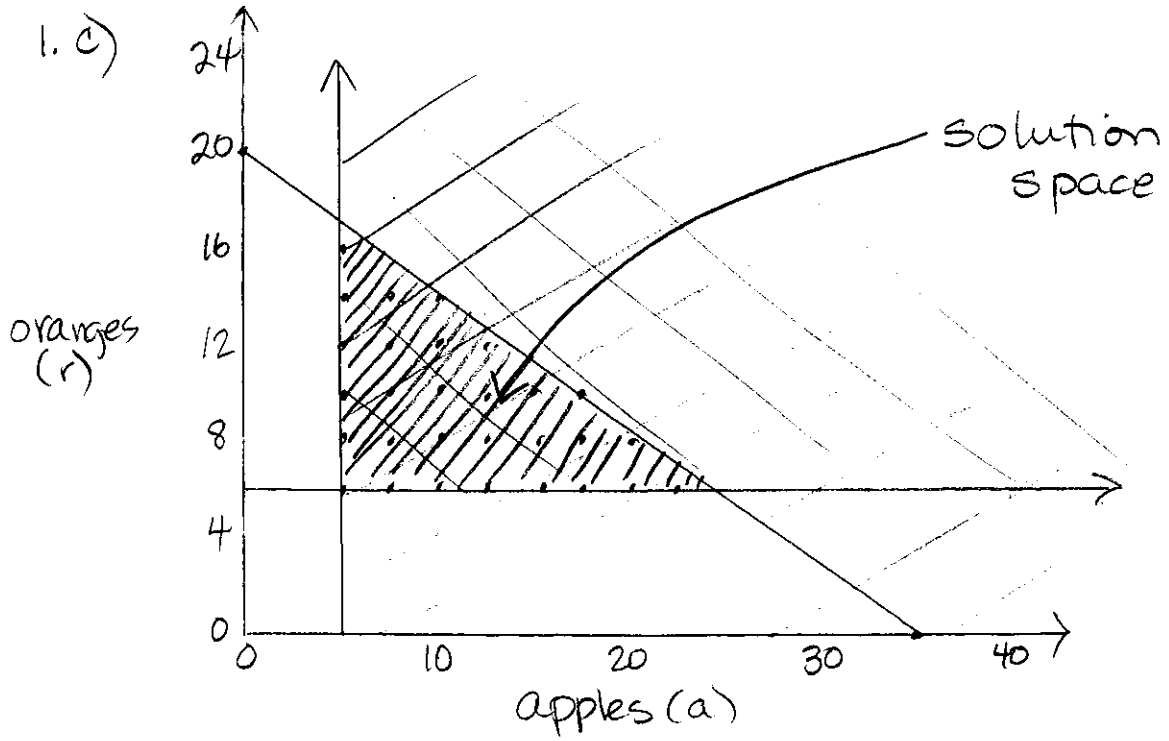
Constraints: $2p \leq j$
$p + j \leq 240$

objective function: $R = j + 1.25p$
(R: revenue)

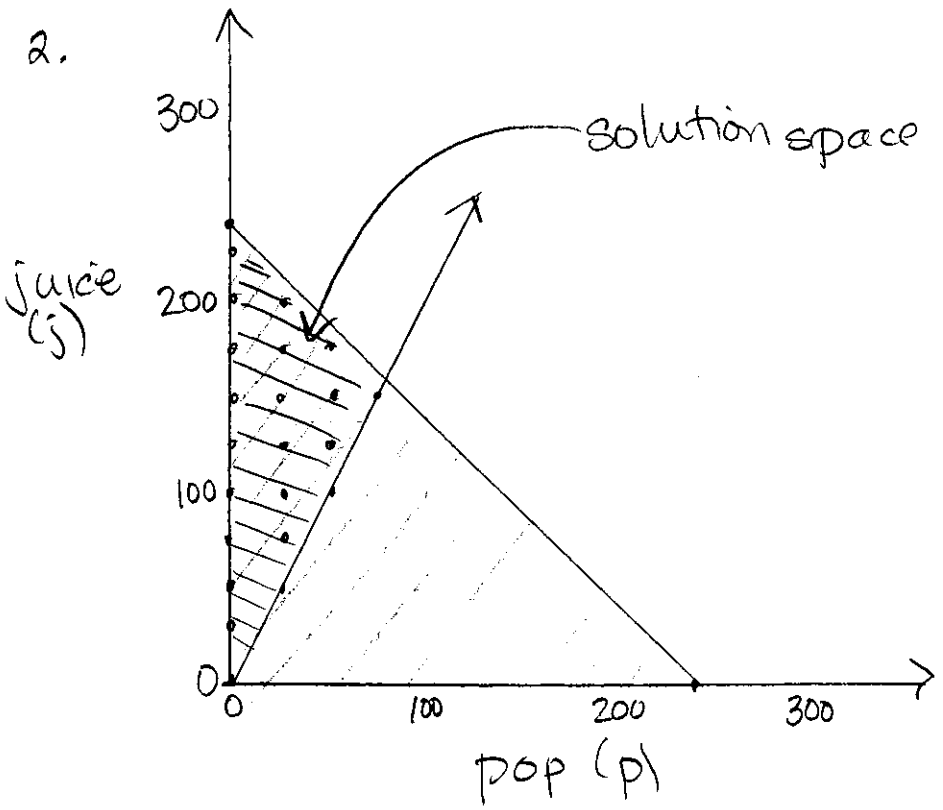
See next page for graph

p. 330 cont.

1. c)



2.



p. 330 cont.

4. - sign sizes: letter or poster
- no more than 15 of each wanted
- no more than 25 signs needed
- letter-size cost $9.80 each and poster-size cost $15.75 each

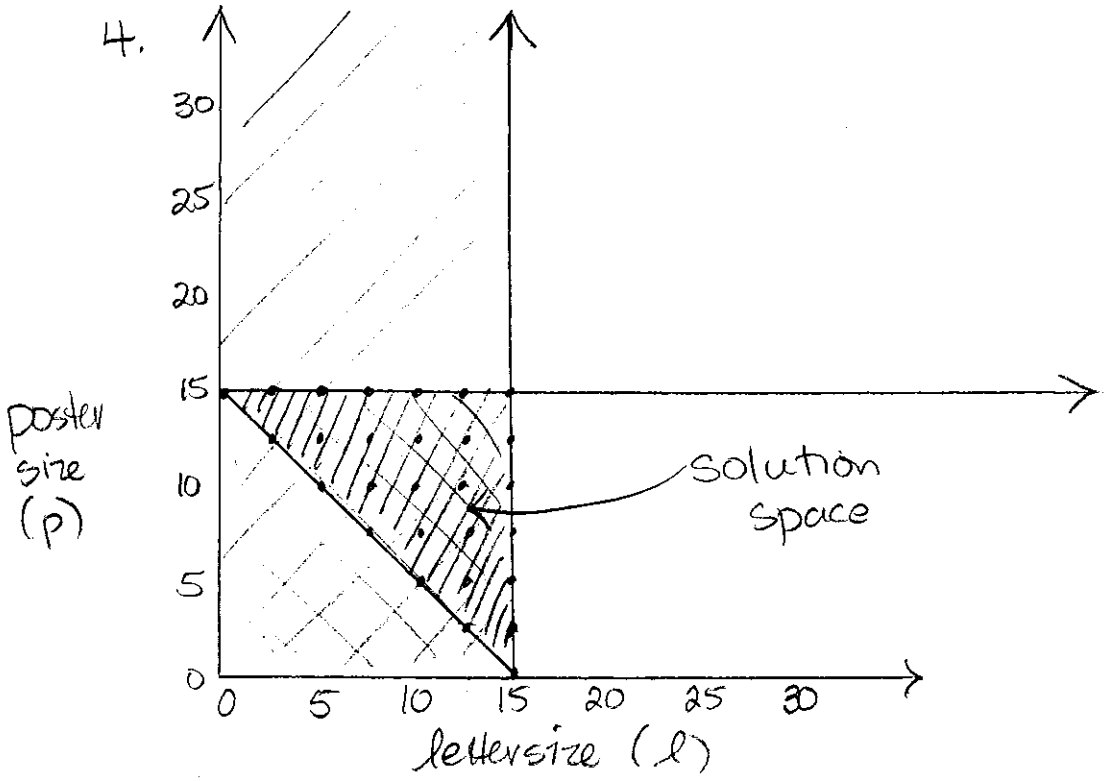
l: letter-size $\quad l \in W$ (whole numbers)
p: poster-size $\quad p \in W$

Constraints: $l \leq 15$
$p \leq 15$
$l + p \geq 15$

Objective function: $C = 9.80l + 15.75p$
(C: cost)

p. 330 cont.

4.


30
25
20
15
10
5
0
poster size (p)
solution space
0
5
10
15
20
25
30
letter size (l)