3/21/2006

Final Exam
Tuesday May 9
12:30-2:30
P/I/1D
Let \( x = \) # of Economy models
\( y = \) # of Deluxe models

Maximize \( P = 12x + 15y \)

Subject to the constraints:
1. \( 2x + 3y \leq 24 \)
2. \( x + \frac{1}{2}y \leq 8 \)

Quadrant I:
\( x \geq 0 \)
\( y \geq 0 \)

\( 2x + 3y = 24 \)
\( x + \frac{1}{2}y = 8 \)

<table>
<thead>
<tr>
<th>( x )</th>
<th>( y )</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>8</td>
<td>0</td>
</tr>
<tr>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
</tr>
</tbody>
</table>

(0,0) True, Shade Below
Corner Points

\( (0,0) \) \hspace{1cm} P = 12(0) + 15(0) = 0

\( (8,0) \) \hspace{1cm} P = 12(8) = 96

\( (0,8) \) \hspace{1cm} P = 0 + 15(8) = 120

\( (6,4) \) \hspace{1cm} P = 12(6) + 15(4) = 72 + 60 = 132

Make 6 economy models

and 4 deluxe models for a maximum \( P = 132 \)


<table>
<thead>
<tr>
<th>Cord</th>
<th>Cordless</th>
<th>Available hrs</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 hr</td>
<td>4 hr</td>
<td>800 hrs</td>
</tr>
</tbody>
</table>

Make S.P. 30 40

Package total 300 trimmers per day

How many type trimmers daily to meet X sales?

Let \( x = \) # cord models

\( y = \) # cordless models

Maximize: \( S = 30x + 40y \)

Subject to the constraints:

\( 2x + 4y \leq 800 \)
\( x + y \leq 300 \)
\( x \geq 0 \)
\( y \geq 0 \)
<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Food 1</th>
<th>Food 2</th>
<th>MDR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ingr. A</td>
<td>10</td>
<td>3</td>
<td>49</td>
</tr>
<tr>
<td>Ingr. B</td>
<td>6</td>
<td>12</td>
<td>60</td>
</tr>
<tr>
<td>Ingr. C</td>
<td>3</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

How much Food 1 & 2 to meet MDR for A & B

Limit: Minimize C.

Let

\[ x = \# \text{ grams Food 1} \]
\[ y = \# \text{ grams Food 2} \]

Minimize \[ C = 3x + y \]

Subject to the constraints:

\[ 10x + 3y \geq 49 \]
\[ 6x + 12y \geq 60 \]
\[ x \geq 0 \]
\[ y \geq 0 \]
Linear Programming

1940 WWⅡ
Thursday

Read 4.4

I will do EX 1 P 330 and do it by the simpler method

P 318 EX vii yellow (4.3)
P 309 EX 3 (4.2)

P 335-336 Summary

Thursday Workshop 1-7