Objective Function

Constraints

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>5</td>
<td>0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>X</th>
<th>Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td>4</td>
<td>0</td>
</tr>
</tbody>
</table>

(0,0)

0 ≤ x
0 ≤ y
x ≥ 0
y ≥ 0

Shade Below

True

(0,0) in the SOL.

Shade Below

0 ≤ 5
Cont.

Feasible Set
1. \( x + y = 5 \)
2. \( 2x + y = 8 \)
mut @ by -1 → \(-x - y = -5\)
@ \( 2x - y = 8 \)
\( x = 3 \)

\( y = 2 \) then we have a
Max value of
\[ P = 23 \]
\[ y \leq 3x \]
\[ x \geq 3y \]

\[ y = 3x \]
\[ x = 3y \]

True \( (0) \) \in \text{sol}
Shade below

\[ \text{True} \ (0) \in \text{sol} \]
Shade below

\[ (1, 0) \]
\[ (0, 1) \]

\[ x \geq 3y \]

\[ \leq \] or \[ \geq \] solid
\[ < \text{ or } > \] dotted
Problem:

Maximize: \( P = 35X + 50Y \)

Subject to:

1. \( Y \geq 4 \)
2. \( X \geq 2Y \)
3. \( X + Y \leq 24 \)
4. \( X \geq 0 \)

Notes:

- \( 4 + \text{least twice # Kodak as Fuji} \)
- \( 3 \pm 4, 5 \pm 4 \)
- \( \text{not more than 24 rolls of film total} \)
- \( \text{# rolls of each brand film to MaxProfit} \)
Machine I  Machine II  Order

Indoor
3 gal/hr  4 gal/hr  At least 60 gal

Outdoor
10 gal/hr  5 gal/hr  At least 100 gal

Cost
28/hr  33/hr

# hours for each machine to fill order, but Min Cost?

Let \( x = \) # hours Machine \# 1
\( y = \) # hours Machine \# 2

Minimize: \( C = 28x + 33y \)

Subject to:
\( 3x + 4y \geq 60 \)
\( 10x + 5y \geq 100 \)
\( x \geq 0 \)
\( y \geq 0 \)
# packs all beef and regular HP. to max profit?

Let $x = \# \text{ packs of all beef }$ HD

$y = \# \text{ packs of regular }$ HD

Maximizing $P = 40x + 30y$

Subject to:

$1 \cdot x + \frac{1}{2} y \leq 200$

$0 \cdot x + \frac{1}{2} y \leq 150$

$x \geq 0$

$y \geq 0$
Tuesday
Worksheet 1-7 all

Similar 2nd 1, 3
Similar 4th 5, 7
one of a kind

7, 6 15 17 19

Test 4 Linear Programming

Thursday Apr 27