

## PROBLEMA 1

$x_1$  = número de sillas

$x_2$  = número de mesas

Maximizar  $f(x_1, x_2) = x_1 + 2x_2$

Sujeto a:

$$x_1 + 3x_2 \leq 9$$

$$2x_1 + x_2 \leq 8$$

$$x_1, x_2 \geq 0, \text{ enteros}$$

| Variable --> | X1      | X2      | Direction | R. H. S. |
|--------------|---------|---------|-----------|----------|
| Maximize     | 1       | 2       |           |          |
| C1           | 1       | 3       | <=        | 9        |
| C2           | 2       | 1       | <=        | 8        |
| LowerBound   | 0       | 0       |           |          |
| UpperBound   | M       | M       |           |          |
| VariableType | Integer | Integer |           |          |

| 22:29:57          |                | Wednesday                | December           | 08               | 2010         |                     |                     |         |
|-------------------|----------------|--------------------------|--------------------|------------------|--------------|---------------------|---------------------|---------|
| Decision Variable | Solution Value | Unit Cost or Profit c(j) | Total Contribution | Reduced Cost     | Basis Status | Allowable Min. c(j) | Allowable Max. c(j) |         |
| 1                 | X1             | 3,0000                   | 1,0000             | 3,0000           | 0            | basic               | 0,6667              | 4,0000  |
| 2                 | X2             | 2,0000                   | 2,0000             | 4,0000           | 0            | basic               | 0,5000              | 3,0000  |
|                   | Objective      | Function                 | (Max.) =           | 7,0000           |              |                     |                     |         |
| Constraint        | Left Hand Side | Direction                | Right Hand Side    | Slack or Surplus | Shadow Price | Allowable Min. RHS  | Allowable Max. RHS  |         |
| 1                 | C1             | 9,0000                   | <=                 | 9,0000           | 0            | 0,6000              | 4,0000              | 24,0000 |
| 2                 | C2             | 8,0000                   | <=                 | 8,0000           | 0            | 0,2000              | 3,0000              | 18,0000 |

3 sillas y 2 mesas, con un beneficio de 7 veces el valor de venta de una silla.  
No sobra ninguna hora de montaje.

## PROBLEMA 2

$x_1$  = número de señoras que cita al día

$x_2$  = número de caballeros que cita al día

Maximizar  $f(x_1, x_2) = 12x_1 + 9x_2$

Sujeto a:

$$3x_1 + x_2 \leq 24$$

$$x_1 + 2x_2 \leq 16$$

$$x_1 + x_2 \leq 10$$

$$x_1, x_2 \geq 0, \text{ enteros}$$

| Variable --> | X1      | X2      | Direction | R. H. S. |
|--------------|---------|---------|-----------|----------|
| Maximize     | 12      | 9       |           |          |
| C1           | 3       | 1       | <=        | 24       |
| C2           | 1       | 2       | <=        | 16       |
| C3           | 1       | 1       | <=        | 10       |
| LowerBound   | 0       | 0       |           |          |
| UpperBound   | M       | M       |           |          |
| VariableType | Integer | Integer |           |          |

| 22:39:31          |                    | Wednesday                | December           | 08               | 2010         |                     |                     |         |
|-------------------|--------------------|--------------------------|--------------------|------------------|--------------|---------------------|---------------------|---------|
| Decision Variable | Solution Value     | Unit Cost or Profit c(j) | Total Contribution | Reduced Cost     | Basis Status | Allowable Min. c(j) | Allowable Max. c(j) |         |
| 1                 | X1                 | 7,0000                   | 12,0000            | 84,0000          | 0            | basic               | 9,0000              | 27,0000 |
| 2                 | X2                 | 3,0000                   | 9,0000             | 27,0000          | 0            | basic               | 4,0000              | 12,0000 |
|                   | Objective Function | (Max.) =                 | 111,0000           |                  |              |                     |                     |         |
| Constraint        | Left Hand Side     | Direction                | Right Hand Side    | Slack or Surplus | Shadow Price | Allowable Min. RHS  | Allowable Max. RHS  |         |
| 1                 | C1                 | 24,0000                  | <=                 | 24,0000          | 0            | 1,5000              | 18,0000             | 30,0000 |
| 2                 | C2                 | 13,0000                  | <=                 | 16,0000          | 3,0000       | 0                   | 13,0000             | M       |
| 3                 | C3                 | 10,0000                  | <=                 | 10,0000          | 0            | 7,5000              | 8,0000              | 11,2000 |

7 señoras y 3 caballeros, con un beneficio de 111 euros al día.

Le sobran 3 dosis de loción capilar tonificante.