

Maximizar  $z = x_1 + x_2 + 3x_3 + 2x_4$

sujeto a

|    | z | x1 | x2 | x3 | x4 | s1 | s2 | s3 |
|----|---|----|----|----|----|----|----|----|
| z  | 1 | -1 | -1 | -3 | -2 | 0  | 0  | 0  |
| s1 | 0 | 1  | 2  | -3 | 5  | 1  | 0  | 0  |
| s2 | 0 | 5  | -2 | 0  | 6  | 0  | 1  | 0  |
| s3 | 0 | 2  | 3  | -2 | 3  | 0  | 0  | 1  |
| s4 | 0 | -1 | 0  | 1  | 2  | 0  | 0  | 0  |

|    | z | x1 | x2 | x3 | x4 | s1 | s2 | s3 |
|----|---|----|----|----|----|----|----|----|
| z  | 1 | -4 | -1 | 0  | 4  | 0  | 0  | 0  |
| s1 | 0 | -2 | 2  | 0  | 11 | 1  | 0  | 0  |
| s2 | 0 | 5  | -2 | 0  | 6  | 0  | 1  | 0  |
| s3 | 0 | 0  | 3  | 0  | 7  | 0  | 0  | 1  |
| x4 | 0 | -1 | 0  | 1  | 2  | 0  | 0  | 0  |

|    | z | x1 | x2   | x3 | x4   | s1 | s2  | s3 |
|----|---|----|------|----|------|----|-----|----|
| z  | 1 | 0  | -2.6 | 0  | 8.8  | 0  | 0.8 | 0  |
| s1 | 0 | 0  | 1.2  | 0  | 13.4 | 1  | 0.4 | 0  |
| x2 | 0 | 1  | -0.4 | 0  | 1.2  | 0  | 0.2 | 0  |
| s3 | 0 | 0  | 3    | 0  | 7    | 0  | 0   | 1  |
| x4 | 0 | 0  | -0.4 | 1  | 3.2  | 0  | 0.2 | 0  |

|    | z | x1 | x2 | x3 | x4      | s1 | s2  | s3      |
|----|---|----|----|----|---------|----|-----|---------|
| z  | 1 | 0  | 0  | 0  | 14.8667 | 0  | 0.8 | 0.86667 |
| s1 | 0 | 0  | 0  | 0  | 10.6    | 1  | 0.4 | -0.4    |
| x2 | 0 | 1  | 0  | 0  | 2.13333 | 0  | 0.2 | 0.13333 |
| x3 | 0 | 0  | 1  | 0  | 2.33    | 0  | 0   | 0.33    |
| x4 | 0 | 0  | 0  | 1  | 4.13333 | 0  | 0.2 | 0.13333 |

$$\begin{array}{rcl}
 x_1 + 2x_2 - 3x_3 + & \leq & 4 \\
 5x_1 - 2x_2 + 6 & \leq & 8 \\
 2x_1 + 3x_2 - 2x_3 & \leq & 3 \\
 -x_1 + x_3 + 2 & \leq & 0 \\
 \hline
 x_1, x_2, x_3, x & \geq & 0
 \end{array}$$

| s4 | f |         |
|----|---|---------|
| 0  | 0 |         |
| 0  | 4 | -1.33   |
| 0  | 8 | #DIV/0! |
| 0  | 3 | -1.5    |
| 1  | 0 | 0       |

| s4 | f |            |
|----|---|------------|
| 3  | 0 |            |
| 3  | 4 | -2         |
| 0  | 8 | <b>1.6</b> |
| 2  | 3 | #DIV/0!    |
| 1  | 0 | 0          |

**Sol. Opt**     $z = 9$   
 $s_1 = 6$   
 $x_2 = 2$   
 $x_3 = 1$   
 $x_4 = 2$

| s4 | f   |    |
|----|-----|----|
| 3  | 6.4 |    |
| 3  | 7.2 | 6  |
| 0  | 1.6 | -4 |
| 2  | 3   | 1  |
| 1  | 1.6 | -4 |

| s4      | f |
|---------|---|
| 4.73333 | 9 |
| 2.2     | 6 |
| 0.26667 | 2 |
| 0.67    | 1 |
| 1.26667 | 2 |