

1.

$$\begin{aligned}
L &= 2x_1 + 2x_2 \rightarrow \max \\
3x_1 - 2x_2 &\geq -6 \\
x_1 + x_2 &\geq 3 \\
x_1 &\leq 3 \\
x_2 &\leq 5 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

2.

$$\begin{aligned}
L &= 2x_1 - 4x_2 \rightarrow \max \\
8x_1 - 5x_2 &\leq 16 \\
x_1 + 3x_2 &\geq 2 \\
2x_1 + 7x_2 &\leq 9 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

3.

$$\begin{aligned}
L &= x_1 + x_2 \rightarrow \max \\
x_1 + x_2 &\geq 1 \\
-5x_1 + x_2 &\leq 0 \\
-x_1 + 5x_2 &\geq 0 \\
x_1 + x_2 &\leq 6 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

4.

$$\begin{aligned}
L &= -2x_1 + x_2 \rightarrow \min \\
2x_1 + x_2 &\leq 8 \\
x_1 + 3x_2 &\geq 6 \\
3x_1 + x_2 &\geq 3 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

5.

$$\begin{aligned}
L &= 2x_1 - x_2 \rightarrow \max \\
2x_1 + x_2 &\leq 8 \\
x_1 + x_2 &\leq 6 \\
-3x_1 + 2x_2 &\geq 3 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

6.

$$\begin{aligned}
L &= -3x_1 + x_2 \rightarrow \min \\
x_1 + 2x_2 &\geq 10 \\
3x_1 + x_2 &\geq 15 \\
x_1 &\leq 8 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

7.

$$\begin{aligned}
L &= 2x_1 + 2x_2 \rightarrow \max \\
3x_1 - 2x_2 &\geq -6 \\
x_1 + x_2 &\geq 3 \\
x_1 &\leq 9 \\
x_2 &\leq 6 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

8.

$$\begin{aligned}
L &= x_1 + 2x_2 \rightarrow \max \\
x_1 + x_2 &\leq 4 \\
3x_1 + x_2 &\geq 4 \\
x_1 + 5x_2 &\geq 4 \\
x_1 &\leq 3 \\
x_2 &\leq 3 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

9.

$$\begin{aligned}
L &= 3x_1 + 2x_2 \rightarrow \max \\
4x_1 + 2x_2 &\geq 12 \\
x_1 + 2x_2 &\leq 10 \\
2x_1 + 2x_2 &\leq 6 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

10.

$$\begin{aligned}
L &= 3x_1 + 3x_2 \rightarrow \max \\
x_1 + x_2 &\leq 4 \\
3x_1 + x_2 &\geq 4 \\
x_1 &\leq 3 \\
x_2 &\leq 3 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

11.

$$\begin{aligned}
L &= x_1 + 2x_2 \rightarrow \max \\
2x_1 + 3x_2 &\leq 15 \\
x_1 + 2x_2 &\geq 6 \\
x_1 + x_2 &\leq 8 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$

12.

$$\begin{aligned}
L &= -x_1 - 2x_2 \rightarrow \min \\
5x_1 - 2x_2 &\leq 4 \\
-x_1 + 2x_2 &\leq 4 \\
x_1 + x_2 &\geq 4 \\
x_1 &\geq 0, \quad x_2 \geq 0
\end{aligned}$$