Step-1

Let us consider the following linear programming problem

Minimize: $x_1 + x_2$

Subject to following constraints

$x_1 \geq 0$
$x_2 \geq 0$
$2x_1 \geq 4$
$x_1 + 3x_2 \geq 11$

Step-2

Let us find the dual of the LPP problem by introducing the dual unknown y_1 and y_2.

Minimization in the Primal becomes maximization in the dual.

Thus, the dual of the problem is as follows.

Maximize: $4y_1 + 11y_2$

Subject to following constraints

$y_1 \geq 0$
$y_2 \geq 0$
$2y_1 + y_2 \leq 1$
$3y_2 \leq 1$

Step-3

Let us solve the primal problem by converting the inequality into equations.

$2x_1^* = 4$
$x_1^* + 3x_2^* = 11$

It gives, $x_1^* = 2$ and $x_2^* = 3$

And the maximum cost is $\boxed{c_1 = 5}$

Step-4

Let us solve the dual problem by converting the inequality into equations.

$$2y_1^* + y_2^* = 1$$
$$3y_2^* = 1$$

It gives, $y_1^* = \frac{1}{3}$ and $y_2^* = \frac{1}{3}$

And the minimum cost is $\boxed{c_2 = 5}$

Step-5

Therefore, it is observed that the primal and the corresponding dual have the same solution.