

③ Le dual de (P)

$$w' = 18y_1 + y_2 + 12y_3 + 2y_4 \rightarrow \min$$

$$\text{s.t. } \begin{cases} 4y_1 + \frac{1}{2}y_2 + 4y_3 + 2y_4 \geq 6 \\ 7y_1 + y_2 + y_3 + y_4 \geq 4 \\ y_1, y_3 \geq 0 \\ y_2, y_4 \leq 0 \end{cases}$$

1.5

④ Resolution graphique

$$(D_1): 4x_1 + 7x_2 = 18 \quad \begin{array}{c|c|c} x_1 & 0 & 5 \\ \hline x_2 & 3 & -1 \end{array}$$

$$(D_3): 4x_1 + x_2 = 12 \quad \begin{array}{c|c|c} x_1 & 2 & 3 \\ \hline x_2 & 4 & 0 \end{array}$$

$$(D_4): x_1 = 0, \quad (D_6): x_2 = 0.$$

$$(D_2): \frac{1}{2}x_1 + x_2 = 1 \quad \begin{array}{c|c|c} x_1 & 0 & 2 \\ \hline x_2 & 1 & 0 \end{array} \quad (D_5): 2x_1 + x_2 = 2 \quad \begin{array}{c|c|c} x_1 & 0 & 1 \\ \hline x_2 & 2 & 0 \end{array}$$

0.5

