

Solución.

a)

$$COP = \frac{Q_2}{W} = \frac{W + Q_1}{W} \Rightarrow W = \frac{Q_1}{COP - 1} = \frac{120}{5 - 1} = 30J$$

b)

$$Q_2 = W + Q_1 = 30 + 120 = 150J$$