Solución.
a)

$$\eta = \frac{W}{Q_2} = \frac{x - W}{W + Q_1} p \Longrightarrow W = \frac{\eta \cdot Q_1}{1 - \eta} = \frac{0,25 \cdot 8000}{1 - 0,25} = 2666,6J$$

$$W = P \cdot tp \Longrightarrow t = \frac{W}{P} = \frac{2666,6}{5000} = 0,53s$$

b)

$$Q_2 = W + Q_1 = 2666,6 + 8000 = 10666,6J$$