Given:
R-134a enters the condenser of a residential heat pump at 800 kPa and 35°C at a rate of 0.018 kg/s and leaves at 800 kPa as a saturated liquid.

Required:
If the compressor consumes 1.2 kW of power, determine the COP of the heat pump and the rate of heat absorption from the outside air.

Solution:
The inlet conditions, flow rate, and outlet conditions of the R-134a are defined as

$$P_1 := 800\ \text{kPa} \qquad T_1 := 35\ °\text{C} \qquad m' := 0.018\ \frac{\text{kg}}{\text{s}} \qquad P_2 := 800\ \text{kPa} \qquad x_2 := 0$$

The net work required of the compressor is defined as

$$W'_{net,in} := 1.2\ \text{kW}$$

1st Law for just the condensor (assuming steady state, rigid, and no ΔKE and ΔPE)

$$\frac{\text{d}}{\text{d}\ t} E_{sys} = \Sigma E'_{in} - \Sigma E'_{out}$$

$$0 = m' \cdot h_1 - m' \cdot h_2 - Q'_H$$

Solving for the heat rejected by the condensor yields

$$Q'_H = m' \cdot \left(h_1 - h_2\right)$$

Going to Table A-11 @ T°C35 & PkPa800 shows that the state is super heated.
Going to Table A-13 @ T°C35 & PkPa800 shows that interpolation is needed.

$$T_a := 31.31\ °\text{C} \qquad T_b := 40\ °\text{C} \qquad h_a := 267.29\ \frac{\text{kJ}}{\text{kg}} \qquad h_b := 276.45\ \frac{\text{kJ}}{\text{kg}}$$

$$h_1 := \frac{T_1 - T_a}{T_b - T_a} \cdot \left(h_b - h_a\right) + h_a = 271.2\ \frac{\text{kJ}}{\text{kg}}$$

Going to Table A-12 @ PkPa800 & x0 shows

$$h_2 := 95.47\ \frac{\text{kJ}}{\text{kg}}$$

The heat rejected by the condensor is then

$$Q'_H := m' \cdot \left(h_1 - h_2\right) = 3163\ \text{W}$$

The COP of the heat pump is then given by

$$\boxed{COP_{HP} := \frac{Q'_H}{W'_{net,in}} = 2.636}$$

The heat rejected by the heat pump is then given by

$$\boxed{Q'_L := Q'_H - W'_{net,in} = 1.963\ \text{kW}}$$