

1 oct 2025 grupo 1204 2026-1

Título de la nota

01/10/2025

Proceso Adiabático

$$\begin{array}{l}
 R \\
 IR
 \end{array}
 \left.
 \begin{array}{l}
 \Delta U = n\bar{C}_V \Delta T \\
 \Delta H = n\bar{C}_P \Delta T
 \end{array}
 \right\}
 \begin{array}{l}
 \Delta U = \cancel{q} - w \\
 \Delta U = -w
 \end{array}$$

$$ds_{IR} = \frac{\delta q}{T} \quad \delta q = du + \delta w \\
 = n\bar{C}_V dT + p dv$$

$$ds_{IR} = \frac{n\bar{C}_V dT + p dv}{T} = n\bar{C}_V \frac{dT}{T} + \frac{p}{T} dv$$

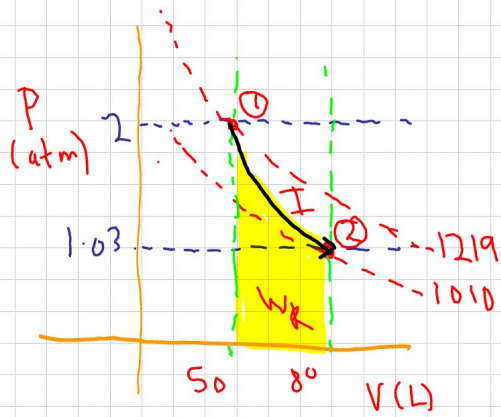
$$pV = nRT \quad \frac{p}{T} = \frac{nR}{v}$$

$$\int_1^2 ds_{IR} = n \bar{C}_v \int_{T_1}^{T_2} \frac{dT}{T} + nR \int_{V_1}^{V_2} \frac{dV}{V}$$

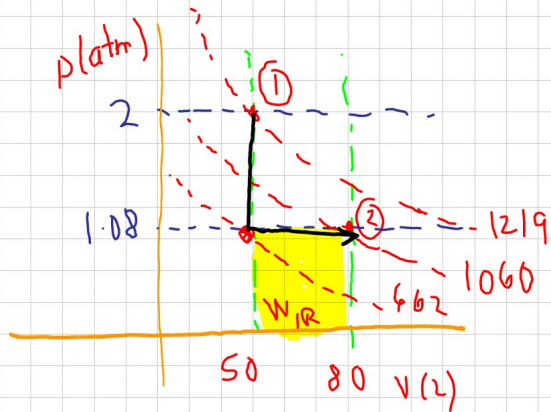
$$\Delta S_{IR} = n \left[\bar{C}_v \ln \frac{T_2}{T_1} + R \ln \frac{V_2}{V_1} \right] = \frac{\text{cal}}{\text{K}}$$

mol $\frac{\text{cal}}{\text{mol K}}$ $\frac{\text{cal}}{\text{mol K}}$

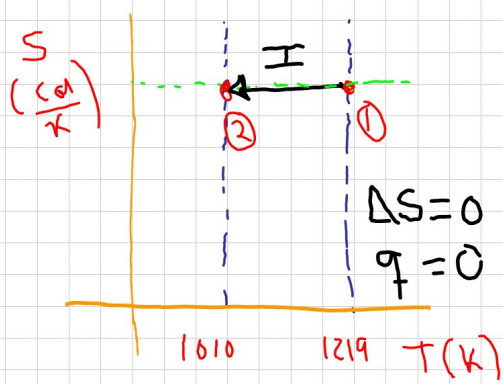
$$\Delta S_R = 0$$



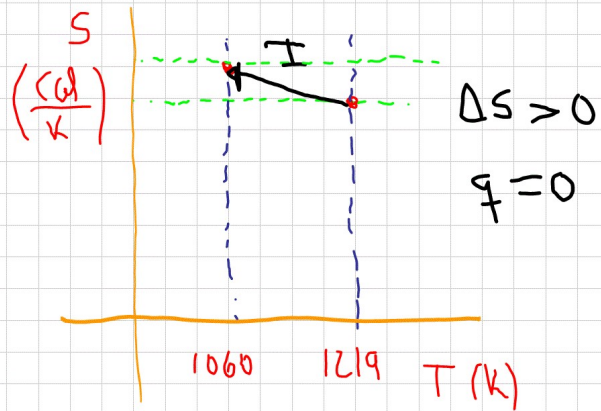
R



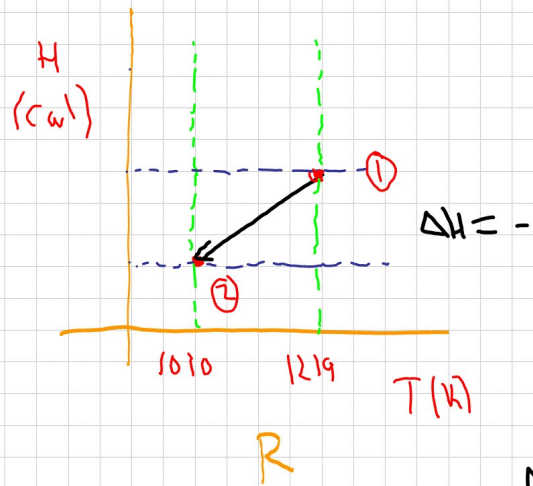
IR



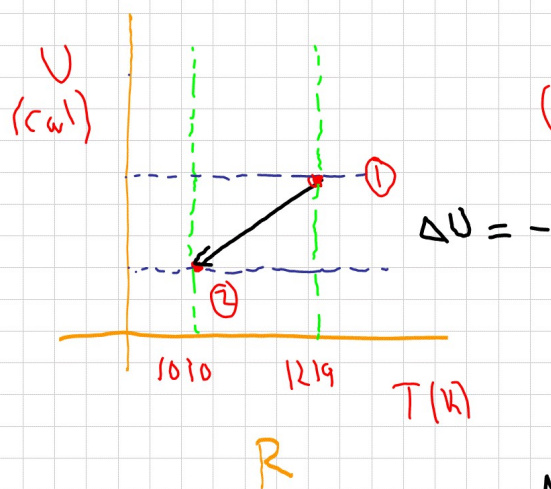
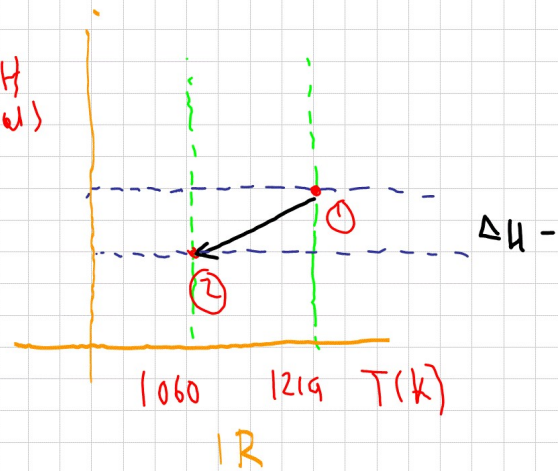
R



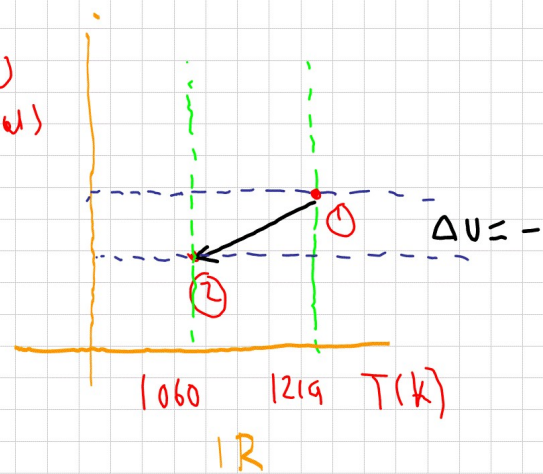
IR

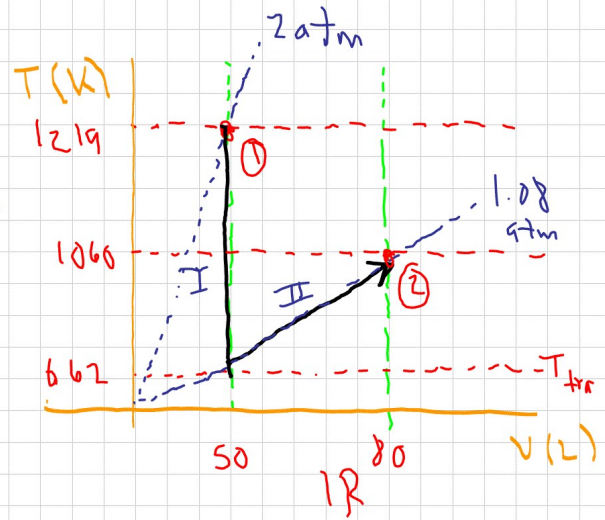
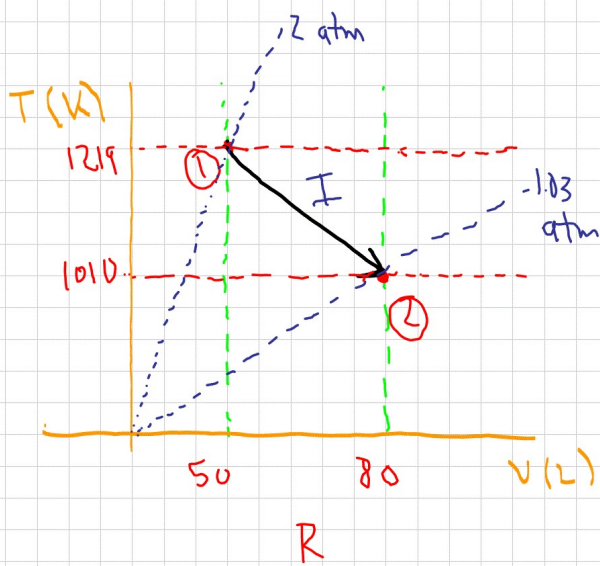


$$\Delta H_R > \Delta H_{IR}$$



$$\Delta U_R > \Delta U_{IR}$$





$$T_1 = 1219.5 \text{ K}$$

$$p_1 = 2 \text{ atm}$$

$$p_2 = 1.08 \text{ atm}$$

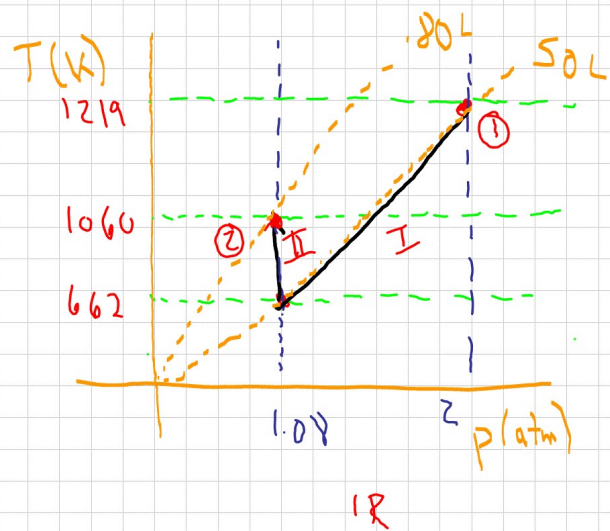
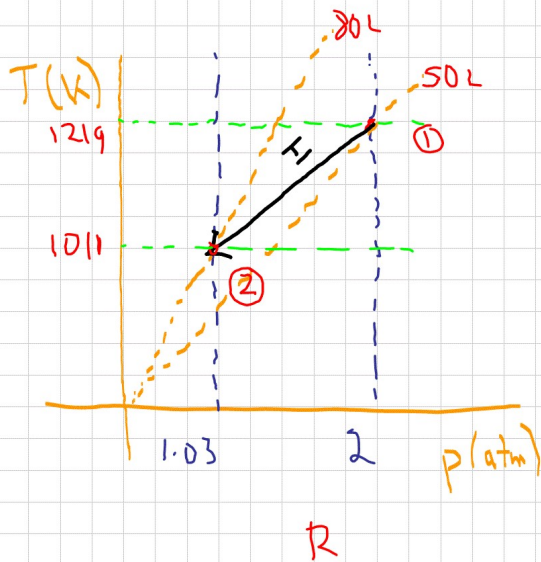
$$T_2 = T_1 \left(\frac{p_2}{p_1} \right)$$

$$= \underline{662.5 \text{ K}} \quad \checkmark$$

$$T_1 = 1219.5 \text{ K}$$

$$T_3 = 662.5 \text{ K} \quad 50 \text{ L} - 80 \text{ L}$$

$$T_2 = T_3 \left(\frac{80 \text{ L}}{50 \text{ L}} \right) = 1060 \text{ K} \quad \checkmark$$



(Refrigerador) Carnot

EFiciencia
Térmica

Aire
Acondicionado

Stirling

Otto

(Bomba Calorimétrica)