

- الحد عارة الحرف في الاسترجاع

$$\Delta S = \Delta S_{AB} + \Delta S_{BC} + \Delta S_{CD} + \Delta S_{DA}$$

$$\Delta S_{AB} = 0 \text{ و } \Delta S_{CD} = 0$$

$$\Delta S_{BC} = \frac{SQ}{T} = \frac{C_p dT + h dP}{T}$$

$$\Delta S_{BC} = C_p \ln \frac{T_c}{T_B}$$

$$= C_p \ln \frac{T_A b^{\gamma}}{T_A}$$

$$\Delta S_{BC} = C_p \ln b$$

$$\Delta S_{DA} = \frac{SQ}{T} = \frac{C_v dT + l dV}{T}$$

$$\Delta S_{DA} = C_v \ln \frac{T_A}{T_D}$$

$$= C_v \ln \frac{1}{b^{\gamma}}$$

$$\Delta S_{DA} = -C_v \gamma \ln b$$

$$= -C_p \ln b$$

$$\boxed{\Delta S_T = 0}$$

$$T_A P_A^{\frac{1-\gamma}{\gamma}} = T_B P_B^{\frac{1-\gamma}{\gamma}}$$

$$P_B = \left(\frac{T_A}{T_B} \right)^{\frac{\gamma}{1-\gamma}} P_A$$

$$P_B = \left(\frac{288}{873,05} \right)^{\frac{1,4}{-0,4}} \cdot 1$$

$$P_B = 48,5 \text{ atm}$$

$$P_B = P_C$$

$$P_D = \frac{n R T_D}{V_D}$$

$$T_D P_D^{\frac{1-\gamma}{\gamma}} = T_C P_C^{\frac{1-\gamma}{\gamma}}$$

$$P_D = \left(\frac{T_C}{T_D} \right)^{\frac{\gamma}{1-\gamma}} P_C$$

$$= \left(\frac{1746,1}{760} \right)^{\frac{-0,4}{1,4}} \cdot 48,5$$

$$P_D = 38,26 \text{ atm}$$