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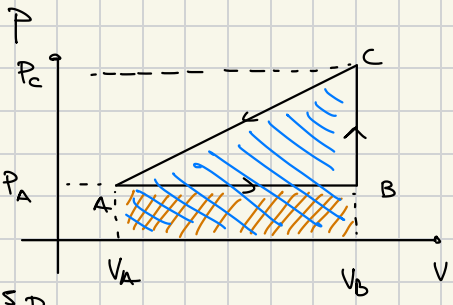

$m = 20g \quad O_2$

$P_A = 2 atm = 2 \cdot 10^5 Pa$

$V_B = 5,5 L = 5,5 \cdot 10^{-3} m^3$

$T_B = \frac{130}{100} T_A \qquad P_C = 3,5 atm = 3,5 \cdot 10^5 Pa$

$W = ? \qquad T_C = ?$

$|W| = \frac{b \cdot h}{2} = \frac{(V_B - V_A)(P_C - P_A)}{2}$ Se riesco a ricavare V_A ho tutto

Tra A e B c'è trasformazione isobara $\frac{V_A}{T_A} = \frac{V_B}{T_B}$

$V_A = V_B \cdot \frac{T_A}{T_B} = V_B \frac{10}{13} \qquad |W| = \frac{V_B \frac{3}{10} (P_C - P_A)}{2} \simeq 98 J$

Devo capire il segno. Ragiono sui vari pezzi e scopro $\boxed{W = -98 J}$

Provo a usare l'isocora BC $\frac{P_C}{T_C} = \frac{P_B}{T_B} \rightsquigarrow T_C = \frac{P_C}{P_B} \cdot T_B$

Per trovare T_B, ho bisogno di T_A; Per T_A utilizzo $P_A V_A = nRT_A$

$T_A = \frac{P_A V_A}{nR}$ con $n = \frac{m}{\mu} \rightsquigarrow n = \frac{m}{\mu} = \frac{20g}{32 \frac{g}{mol}} =$

$T_A = \frac{P_A V_A}{\mu R} \cdot m \rightsquigarrow T_B = \frac{13}{10} T_A \rightsquigarrow \boxed{T_C = \frac{P_C}{P_B} \cdot \frac{13}{10} T_A \simeq 3,8 \cdot 10^2 K}$

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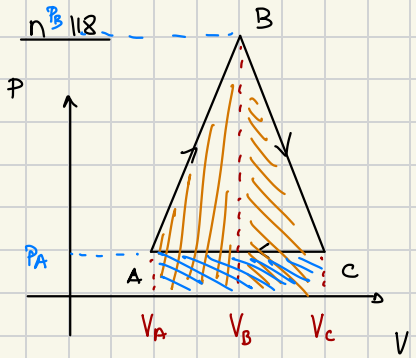

$P_A = 1,1$ bar $= P_C$

$P_B = 1,8$ bar

$V_A = 30\ dm^3$

$V_C = 40\ dm^3$

Triangolo isoscele

$V_B = ?$ $\qquad$ $W = ?$

$$V_B = \frac{V_C + V_A}{2} = 50\ dm^3$$

$$|W| = \frac{b \cdot h}{2} = \frac{(V_C - V_A)(P_B - P_A)}{2} = 1,4\ kJ.$$ Studio segno $\rightsquigarrow W = 1,4\ kJ$

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$\ell = 3$

Espansione adiabatica

$V_f = 3V_i$

$T_i = 600\ K$

$T_f = ?$

$$\gamma = \frac{\ell + 2}{\ell} = \frac{5}{3}$$

Ricordo: $T_B = \left(\frac{V_A}{V_B}\right)^{\gamma - 1} T_A$

$$T_f = \left(\frac{V_i}{3V_i}\right)^{\frac{2}{3}} T_i$$

$$= \left(\frac{1}{3}\right)^{\frac{2}{3}} T_i \approx 201\ K$$