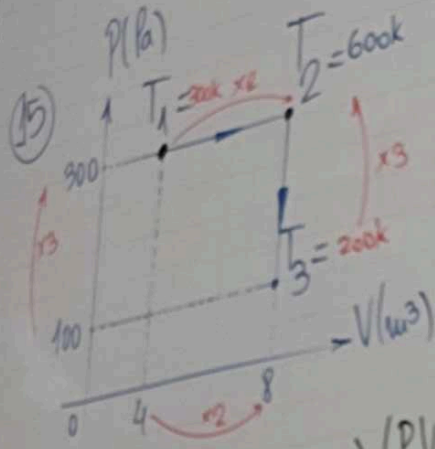
(15)



1) $\left(\frac{PV}{T}\right)_1 = \left(\frac{PV}{T}\right)_2$

$\frac{300(4)}{T_1} = \frac{300(8)}{600}$

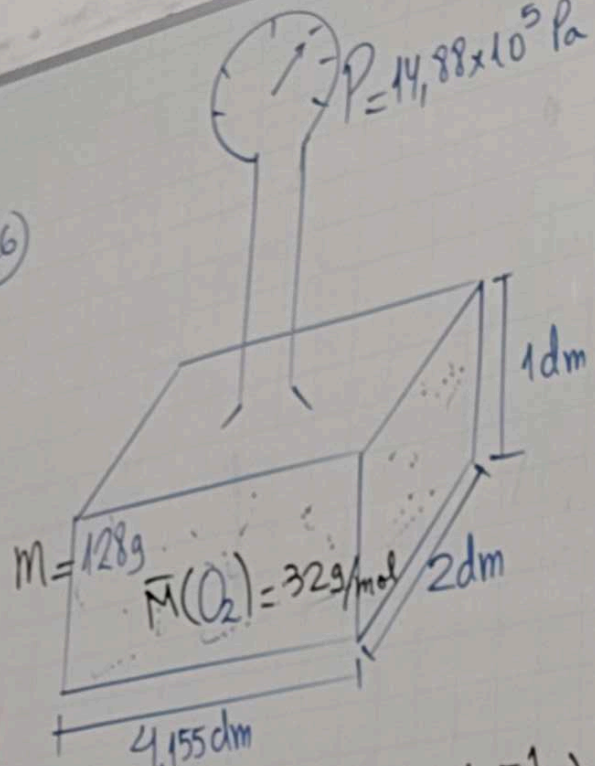
$T_1 = 300k$

2) $\left(\frac{PV}{T}\right)_2 = \left(\frac{PV}{T}\right)_3$

$\frac{300(8)}{600} = \frac{100(8)}{T_3}$

$T_3 = 200k$

(16)



$V = (4,155 \times 10^{-1} m)(2 \times 10^{-1} m)(10^{-1} m)$

$V = 8,31 \times 10^{-3} m^3$

$n = \frac{m}{M} = \frac{128}{32} = 4 moles$

$PV = RTn$

$14,88 \times 10^5 \times 8,31 \times 10^{-3} = 8,31 \times T \times 4$

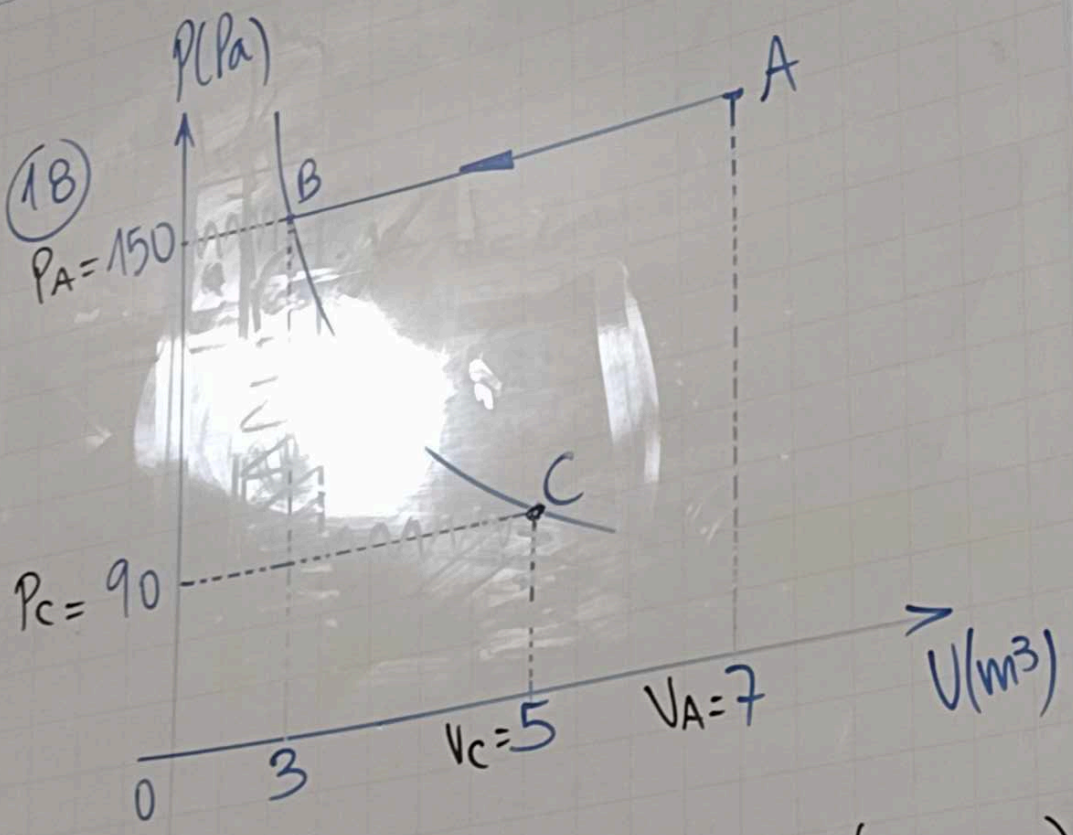
$T = 372k - 273$

$T = 99°C$

(18)

PA

Pc =



(18)

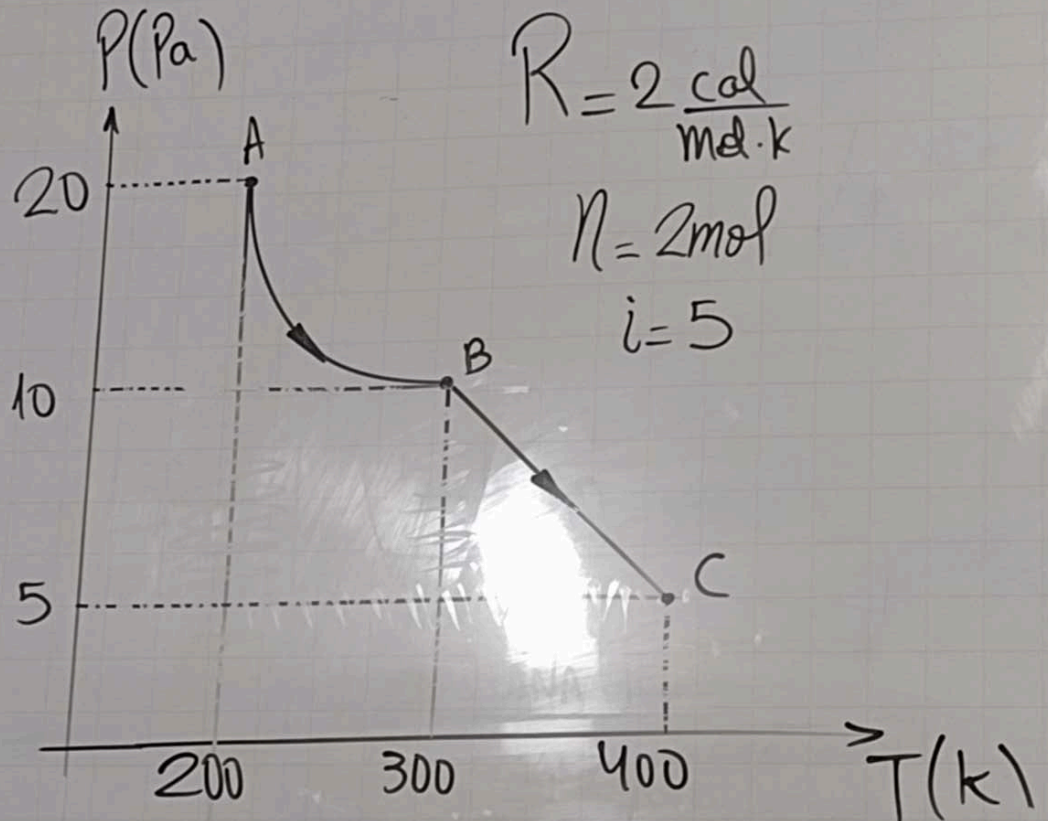
$$\Delta U_{AC} = \frac{i}{2} R \cdot \Delta T \cdot n = \frac{3}{2} Rn(T_C - T_A)$$

$$= \frac{3}{2}(RnT_C - RnT_A)$$

$$= \frac{3}{2}(P_C V_C - P_A \cdot V_A)$$

$$= \frac{3}{2}(90 \times 5 - 150 \times 7) = -900\,J$$

(20)



$R = 2 \frac{cal}{mol \cdot k}$

$n = 2 mol$

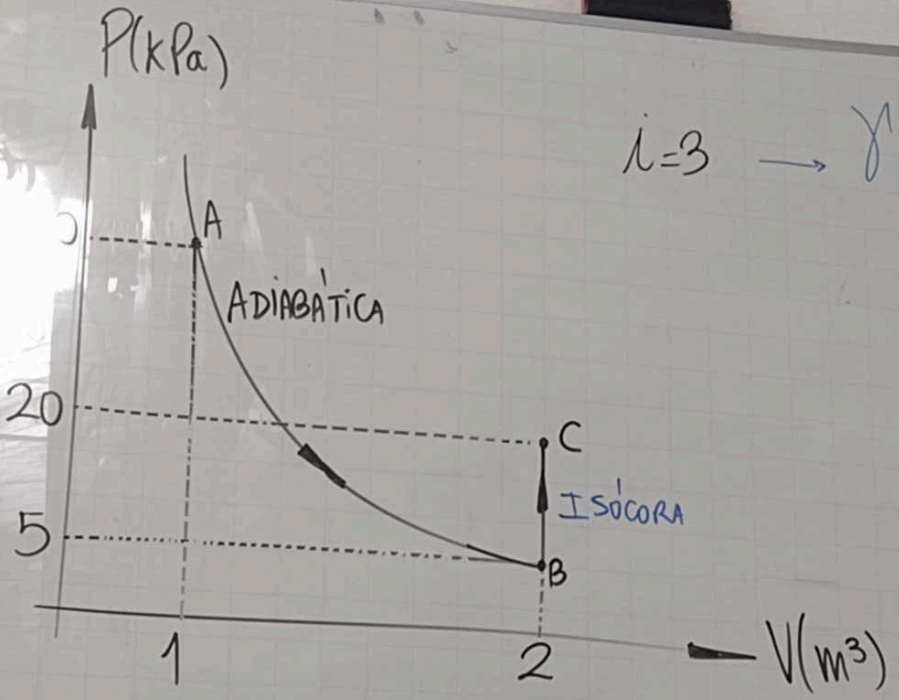
$i = 5$

$$\Delta U_{AC} = \frac{i}{2} R \cdot \Delta T \cdot n = \frac{5}{2} Rn (T_C - T_A)$$

$$= \frac{5}{2}(2)(2)(400 - 200)$$

$$= 2000 cal = 2 Kcal$$

(22)



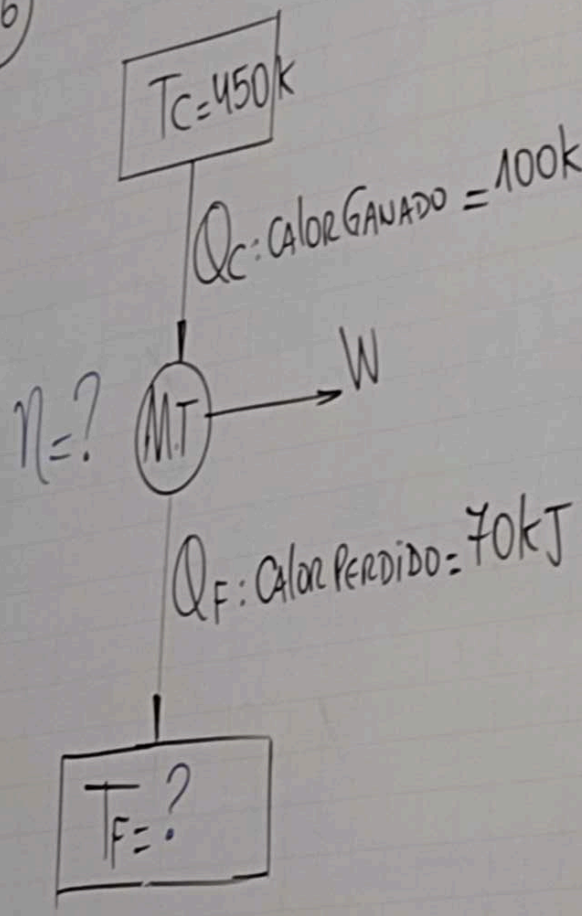
$i = 3 \longrightarrow \gamma = \frac{i+2}{i} = \frac{5}{3} = 1{,}67$

$$W_{A\to B\to C} = W_{A\to B} + \cancel{W_{B\to C}}^{\,0}$$

$$= \left(\frac{P_B V_B - P_A V_A}{1-\gamma}\right) = \frac{5(2) - 80(1)}{1-\frac{5}{3}} = \frac{-70}{\left(-\frac{2}{3}\right)} = 3(35) = 105\,KJ$$

CARNOT

(36)



1) $\frac{Q_C}{T_C} = \frac{Q_F}{T_F}$

$\frac{100}{450} = \frac{70}{T_F}$

$T_F = 315k$

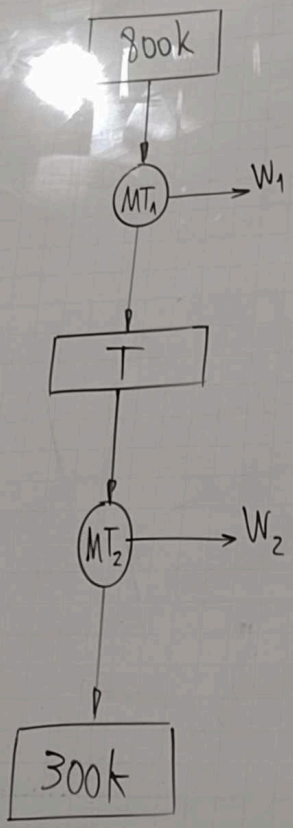
2) $\eta_{max} = \left(1 - \frac{T_F}{T_C}\right) \times 100\%$

$= \left(1 - \frac{315}{450}\right) \times 100\%$

$= \left(\frac{135}{450}\right) \times 100\%$

$= 30\%$

(26)



DATO:

$\eta_1 = 2\eta_2$

$\left(1 - \frac{T}{800}\right) \times 100\% = 2\left(1 - \frac{300}{T}\right) \cdot 100\%$

$1 - \frac{T}{800} = 2 - \frac{600}{T}$

$\frac{600}{T} - \frac{T}{800} = 1$

$\frac{480000 - T^2}{800T} = 1$

$480\,000 - T^2 = 800T$

$T^2 + 800T - 480\,000 = 0$

1200

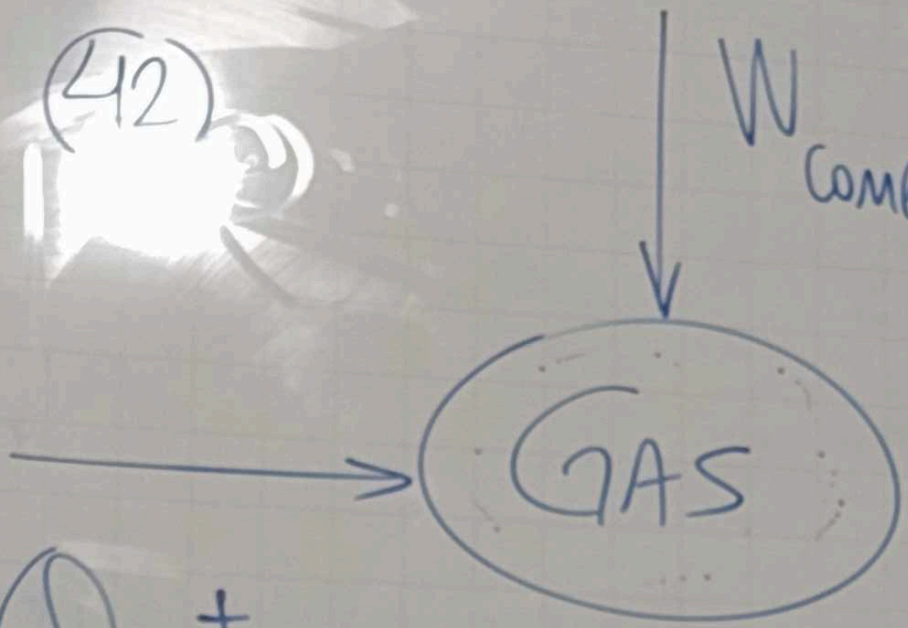
T

T

−400

$T = 400K$

(42)



$$Q = +2500\,\cancel{J} \times \frac{0{,}24\,cal}{1\,\cancel{J}} = 600\,cal$$

$$Q = W + \Delta U$$

$$600\,cal = -480\,cal + \Delta U$$

$$\Delta U = 1080\,cal$$