

$$P \frac{dV}{V} = (V_2 - V_1) \left[\frac{1}{3} \right]$$

$$1 - \frac{1}{3} = \frac{2}{3}$$

$$P \frac{dV}{V} = (V_2 - V_1)$$

$$= \frac{1.5 \times 1.013 \times 10^5}{2} \left(\frac{1}{2} - 1 \right)$$

$$T_2 V_2^{\gamma-1} = T_1 V_1^{\gamma-1}$$

$$273.16$$

$$= 1.5 \times 1.013 \times 10^5 (0.5)$$

$$T_2 = \frac{273.16 \times \frac{V_1^{\gamma-1}}{V_2^{\gamma-1}}}{2^{\gamma-1}} = 273.16 \times 2 = 546.32$$

$$T_2 = \underline{\underline{433.6}} \quad \underline{\underline{476.2}}$$

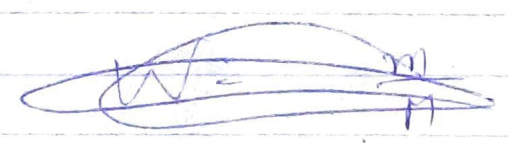
Work (W)

$$= \frac{P \Delta V}{\gamma - 1}$$

$$= \frac{8.31 \times 3}{-2} (433.6 - 273.16)$$

$m = 1 \text{ gm}$, $T = 300 \text{ K}$, $V_1 = V$, $V_2 = 2V$

$$\frac{T_1}{V_1} = \frac{T_2}{V_2}$$



$T = 300 \text{ K}$
 $\Delta Q \neq 0$

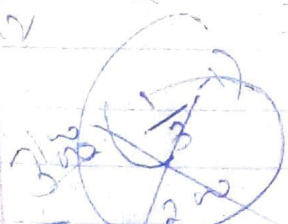
$\Delta T = 0 \rightarrow$ isothermal.

$$\frac{P_1}{P_2} = \frac{V_2}{V_1}$$

$$V_2 = \frac{1}{3}$$

$$\Delta Q = 0$$

$$\frac{Q}{1-\gamma} = \Delta T$$



$$T_1 V_1^{\gamma-1} = T_2 V_2^{\gamma-1}$$

$$\frac{T_2}{T_1} = \frac{V_1^{\gamma-1}}{V_2^{\gamma-1}} \Rightarrow T_2 = T_1 3^{\gamma-1}$$