

$$C_v = \frac{5}{2} R$$

$$n = 2 \text{ kmol}$$

$$T_i = 27^\circ \text{C}$$

$$T_f = 227^\circ \text{C}$$

ideal gas: $Pv = RT$

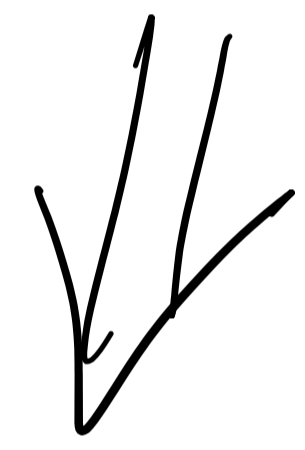
$$PV = nRT$$

$$C_v = \left(\frac{\partial u}{\partial T} \right)_v \implies du = C_v dT$$

integrating

$$\Delta u = \int_{T_i}^{T_f} C_v dT$$

$$= C_v (T_f - T_i)$$



$$\Delta U = n C_v (T_f - T_i) = 2 \cdot 10^3 \cdot 8.3145$$

$$\cdot \frac{5}{2} \cdot 200 = 8.31 \times 10^6 \text{ J}$$

= 227 - 27
↓

b) $h = u + Pv$

$$\Delta h = \Delta u + \Delta(Pv)$$

$$\Delta H = \Delta U + \Delta(PV)$$

$$= \Delta U + nR\Delta T$$

$$= 8.31 \times 10^6 \text{ J} + 2 \cdot 10^3 \cdot 8.3145$$

$$\cdot 200 = 1.16 \times 10^7 \text{ J}$$