

Ex. aula

gás Xe $\rightarrow n = 0,4219 \text{ mol}$ $T_1 = 300 \text{ K}$
 $C_p = 20,79 \text{ J K}^{-1} \text{ mol}^{-1}$ $T_2 = 400 \text{ K}$
 $C_v = 12,47 \text{ J K}^{-1} \text{ mol}^{-1}$

$$\Delta U = n \bar{C}_v \Delta T = (0,4219)(12,47)(400-300) = 526 \text{ J}$$

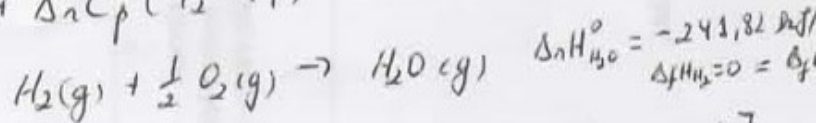
$$\Delta H = n \bar{C}_p \Delta T = (0,4219)(20,79)(400-300) = 877 \text{ J}$$

Ex aula

Kirchhoff

ΔC_p° independente de T no intervalo de T_1 e T_2 !

$$\Delta_r H_{T_2}^\circ = \Delta_r H_{T_1}^\circ + \Delta_r C_p^\circ (T_2 - T_1)$$



$$\Delta_r C_p^\circ = C_{p,m}^\circ(\text{H}_2\text{O}, \text{g}) - \left[C_{p,m}^\circ(\text{H}_2, \text{g}) + \frac{1}{2} C_{p,m}^\circ(\text{O}_2, \text{g}) \right]$$

$$= -9,94 \text{ J K}^{-1} \text{ mol}^{-1}$$

$$\Delta_r H_{T=373\text{K}}^\circ = -241,82 \text{ kJ/mol} + \left[(-9,94 \text{ J/K mol}) \times (75 \text{ K}) \times 10^{-3} \right]$$

$$= -242,6 \text{ kJ/mol}$$

- Etapas:
- 1) escreva a reação química;
 - 2) balanceie a reação (estequiometria);
 - 3) o enunciado pede $\Delta_r H^\circ$ a $T_2 \neq T_1$, tendo T_1 ;
 - 4) a expressão adequada é de Kirchhoff;
 - 5) calcule $\Delta_r C_p^\circ$ com os dados da tabela.