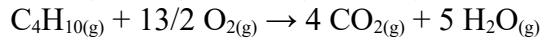
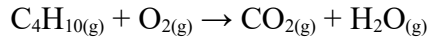


Problema 468: Ajusta la reacción siguiente y di si será espontánea, utilizando las ΔG_f°



$$\Delta G_R^\circ = \sum n_p \cdot \Delta G_{f \text{ prod}}^\circ - \sum n_r \cdot \Delta G_{f \text{ react}}^\circ$$

$$\Delta G_R^\circ = 4 \text{ mol} \cdot \Delta G_f^\circ [\text{CO}_{2(g)}] + 5 \text{ mol} \cdot \Delta G_f^\circ [\text{H}_2\text{O}_{(g)}] - 1 \text{ mol} \cdot \Delta G_f^\circ [\text{C}_4\text{H}_{10(g)}] - \frac{13}{2} \text{ mol} \cdot \Delta G_f^\circ [\text{O}_{2(g)}]$$

$$\Delta G_R^\circ = 4 \text{ mol} \cdot \Delta G_f^\circ [\text{CO}_{2(g)}] + 5 \text{ mol} \cdot \Delta G_f^\circ [\text{H}_2\text{O}_{(g)}] - 1 \text{ mol} \cdot \Delta G_f^\circ [\text{C}_4\text{H}_{10(g)}]$$

$$\Delta G_R^\circ = 4 \text{ mol} \cdot \left(-394,6 \frac{\text{kJ}}{\text{mol}}\right) + 5 \text{ mol} \cdot \left(-228,6 \frac{\text{kJ}}{\text{mol}}\right) - 1 \text{ mol} \cdot \left(-17,1 \frac{\text{kJ}}{\text{mol}}\right) = \underline{\underline{-2.704 \text{ kJ}}}$$

Si la variación de energía libre es negativa indica que **la reacción es espontánea** a temperatura ambiente