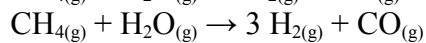
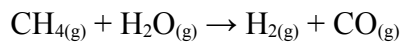
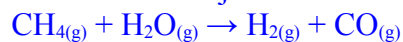


Problema427: Ajusta la reacción siguiente y di si será espontánea, utilizando las  $\Delta G_f^\circ$



$$\begin{aligned}\Delta G_R^\circ &= \sum n_p \Delta G_f^\circ \text{prod.} - \sum n_r \Delta G_f^\circ \text{react.} = \\ &= 3 \text{mol} \cdot \Delta G_f^\circ [\text{H}_{2(g)}] + 1 \text{mol} \cdot \Delta G_f^\circ [\text{CO}_{(g)}] - 1 \text{mol} \cdot \Delta G_f^\circ [\text{CH}_{4(g)}] - 1 \text{mol} \cdot \Delta G_f^\circ [\text{H}_2\text{O}_{(g)}] = \\ &= 1 \text{mol} \cdot \Delta G_f^\circ [\text{CO}_{(g)}] - 1 \text{mol} \cdot \Delta G_f^\circ [\text{CH}_{4(g)}] - 1 \text{mol} \cdot \Delta G_f^\circ [\text{H}_2\text{O}_{(g)}] = \\ &= 1 \text{mol}(-137,3 \text{kJ/mol}) - 1 \text{mol}(-50,8 \text{kJ/mol}) - 1 \text{mol}(-228,6 \text{kJ/mol}) = \underline{\underline{+142,1 \text{kJ}}}\end{aligned}$$

Si la variación de energía libre es positiva indica que la reacción no es espontánea a temperatura ambiente