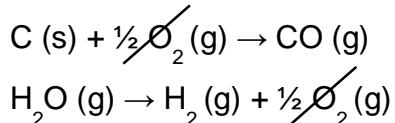


## Soluzione preliminare del problema 4

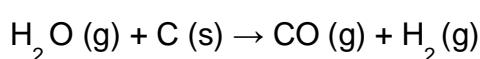
### Problema 4) Gassificazione del carbone

a) Usando la legge di Hess



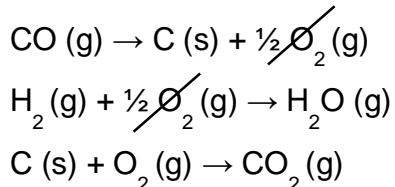
$$\begin{aligned} \Delta_r H^\circ &= -110.5 \text{ kJ mol}^{-1} \\ \Delta_r H^\circ &= 241.8 \text{ kJ mol}^{-1} \end{aligned}$$


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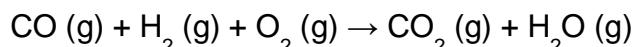
$$\Delta_r H^\circ = 131.3 \text{ kJ mol}^{-1}$$

b) Usando la legge di Hess



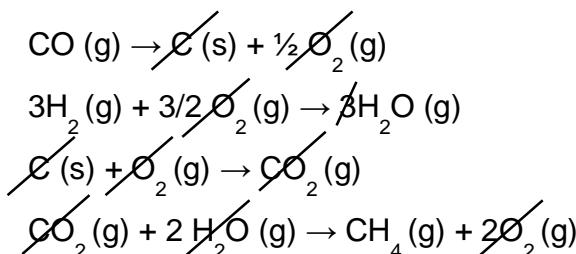
$$\begin{aligned} \Delta_r H^\circ &= 110.5 \text{ kJ mol}^{-1} \\ \Delta_r H^\circ &= -241.8 \text{ kJ mol}^{-1} \\ \Delta_r H^\circ &= -393.5 \text{ kJ mol}^{-1} \end{aligned}$$


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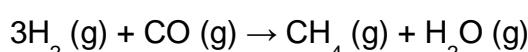
$$\Delta_r H^\circ = -524.8 \text{ kJ mol}^{-1}$$

c) Usando la legge di Hess



$$\begin{aligned} \Delta_r H^\circ &= 110.5 \text{ kJ mol}^{-1} \\ \Delta_r H^\circ &= -725.4 \text{ kJ mol}^{-1} \\ \Delta_r H^\circ &= -393.5 \text{ kJ mol}^{-1} \\ \Delta_r H^\circ &= 802.7 \text{ kJ mol}^{-1} \end{aligned}$$


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$$\Delta_r H^\circ = -205.7 \text{ kJ mol}^{-1}$$

Soluzione proposta da  
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