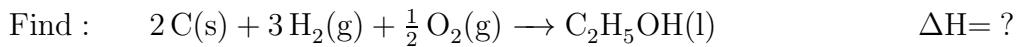
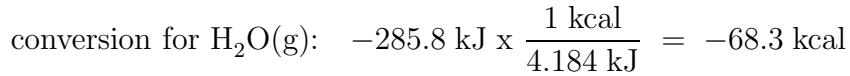
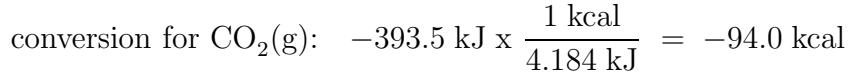


HESS' LAW 4



Given :

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| (1) | $\text{CH}_3\text{OCH}_3(\text{l}) + 3 \text{O}_2(\text{g}) \rightarrow 2 \text{CO}_2(\text{g}) + 3 \text{H}_2\text{O(l)}$ | $\Delta H = - 348.6 \text{ kcal}$ |
| (2) | $\text{CH}_3\text{OCH}_3(\text{l}) \rightarrow \text{C}_2\text{H}_5\text{OH(l)}$ | $\Delta H = - 22.1 \text{ kcal}$ |
| (3) | $\text{C(s)} + \text{O}_2(\text{g}) \rightarrow \text{CO}_2(\text{g})$ | $\Delta H = - 94.0 \text{ kcal}$ |
| (4) | $\text{H}_2(\text{g}) + \frac{1}{2} \text{O}_2(\text{g}) \rightarrow \text{H}_2\text{O(l)}$ | $\Delta H = - 68.3 \text{ kcal}$ |
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|---------|--|-----------------------------------|
| (2) | $\text{CH}_3\text{OCH}_3(\text{l}) \rightarrow \text{C}_2\text{H}_5\text{OH(l)}$ | $\Delta H = - 22.1 \text{ kcal}$ |
| rev (1) | $2 \text{CO}_2(\text{g}) + 3 \text{H}_2\text{O(l)} \rightarrow \text{CH}_3\text{OCH}_3(\text{l}) + 3 \text{O}_2(\text{g})$ | $\Delta H = + 348.6 \text{ kcal}$ |
| 2 x (3) | $2 \text{C(s)} + 2 \text{O}_2(\text{g}) \rightarrow 2 \text{CO}_2(\text{g})$ | $\Delta H = - 188.1 \text{ kcal}$ |
| 3 x (4) | $3 \text{H}_2(\text{g}) + \frac{3}{2} \text{O}_2(\text{g}) \rightarrow 3 \text{H}_2\text{O(l)}$ | $\Delta H = - 204.9 \text{ kcal}$ |
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