

LATIHAN 6

Jawablah pertanyaan berikut dengan benar di lembar kerja yang disediakan!



1. Diketahui:



Hitunglah nilai perubahan entalpi pada pembentukan 56 gram CO (Ar C = 12, O = 16) pada keadaan standar!

Reaksi 1 _____ + _____ → _____ $\Delta H = \text{_____}$

Reaksi 2 _____ → _____ + _____ $\Delta H = \text{_____}$

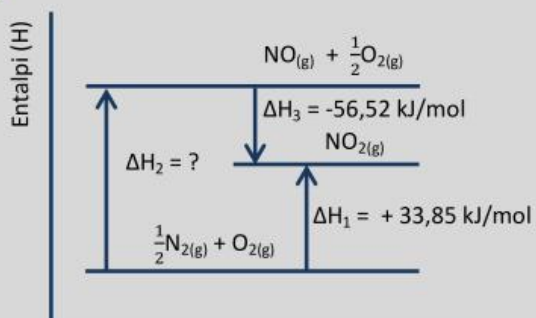
_____ + _____ → _____ $\Delta H = \text{_____}$

Mol CO = _____ = _____ = _____ mol

Untuk membentuk _____ mol CO dilepaskan kalor sebesar =
 _____ × _____ kJ/mol = _____ kJ



2. Perhatikan diagram energi berikut!



Berdasarkan diagram di atas, tentukanlah nilai ΔH_2 !

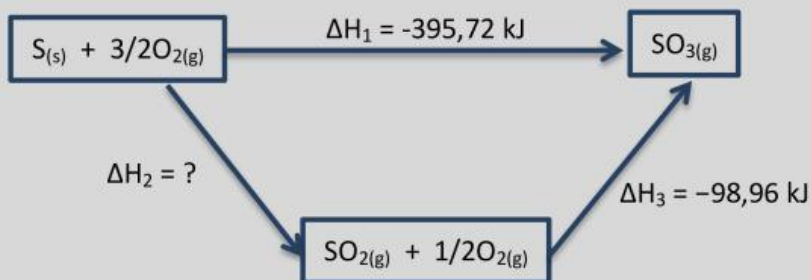


$$\Delta H_1 = \Delta H_2 + \Delta H_3$$

$$\Delta H_2 = \underline{\hspace{2cm}}$$

$$\Delta H_2 = \underline{\hspace{2cm}}$$

3. Diketahui diagram siklus energi berikut:



Hitunglah nilai ΔH_2 !

$$\Delta H_1 = \Delta H_2 + \Delta H_3$$

$$\Delta H_2 = \underline{\hspace{2cm}}$$

$$\Delta H_2 = \underline{\hspace{2cm}}$$

4. Diketahui:

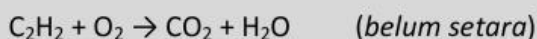
$$\Delta H_f^\circ \text{C}_2\text{H}_2 = -a \text{ kJ/mol}$$

$$\Delta H_f^\circ \text{H}_2\text{O} = -c \text{ kJ/mol}$$

$$\Delta H_f^\circ \text{CO}_2 = -b \text{ kJ/mol}$$

Tentukanlah nilai perubahan entalpi pembakaran sempurna 52 gram C_2H_2 (Ar

C = 12, H = 1) sesuai persamaan reaksi:



$$\Delta H \text{ reaksi} = \underline{\hspace{2cm}}$$

$$\Delta H \text{ reaksi} = (\underline{\hspace{1cm}} + \underline{\hspace{1cm}}) - (\underline{\hspace{1cm}} + \underline{\hspace{1cm}})$$

$$\Delta H \text{ reaksi} = \underline{\hspace{2cm}} - \underline{\hspace{2cm}}$$

$$\Delta H \text{ reaksi} = \underline{\hspace{2cm}}$$

$$\text{Mol C}_2\text{H}_2 = \underline{\hspace{1cm}} = \underline{\hspace{1cm}} = \underline{\hspace{1cm}} \text{ mol}$$

Untuk membakar $\underline{\hspace{1cm}}$ mol C_2H_2 dilepaskan kalor sebesar =

$$\underline{\hspace{1cm}} \times \underline{\hspace{1cm}} \text{ kJ/mol} = \underline{\hspace{1cm}} \text{ kJ}$$

5. Diketahui $\Delta H_f^\circ \text{NH}_4\text{Cl} = -314 \text{ kJ/mol}$, $\Delta H_f^\circ \text{HCl} = -92 \text{ kJ/mol}$ dan $\Delta H_f^\circ \text{NH}_3 = -46 \text{ kJ/mol}$. Hitunglah nilai ΔH untuk reaksi berikut $\text{NH}_4\text{Cl}_{(g)} \rightarrow \text{NH}_{3(g)} + \text{HCl}_{(g)}$!

$\Delta H \text{ reaksi} =$ _____
 _____ $= (\Delta H_f^\circ \text{NH}_3 + \text{_____}) - (\text{_____} + \text{_____})$
 $\Delta H_f^\circ \text{NH}_3 =$ _____



6. Jika energi ikatan rata-rata $\text{C} - \text{H} = 413 \text{ kJ/mol}$ dan $\text{C}_2\text{H}_{6(g)} \rightarrow 2\text{C}_{(g)} + 6\text{H}_{(g)}$ $\Delta H = +2826 \text{ kJ}$. Maka energi ikatan rata-rata $\text{C} - \text{C}$ adalah?

$\Delta H \text{ reaksi} =$ _____
 _____ $=$ _____ $-$ _____
 _____ $=$ _____
 $\text{C} - \text{C} =$ _____



7. Diketahui:

$\Delta H \text{ H}_2\text{O} = -242 \text{ kJ/mol}$

$\text{H} - \text{H} = 436 \text{ kJ/mol}$

$\text{O} = \text{O} = 495 \text{ kJ/mol}$

Tentukanlah besarnya energi ikatan rata-rata $\text{O} - \text{H}$ dalam H_2O !

$\Delta H \text{ reaksi} =$ _____
 _____ $=$ _____ $-$ _____
 _____ $=$ _____
 $\text{O} - \text{H} =$ _____

