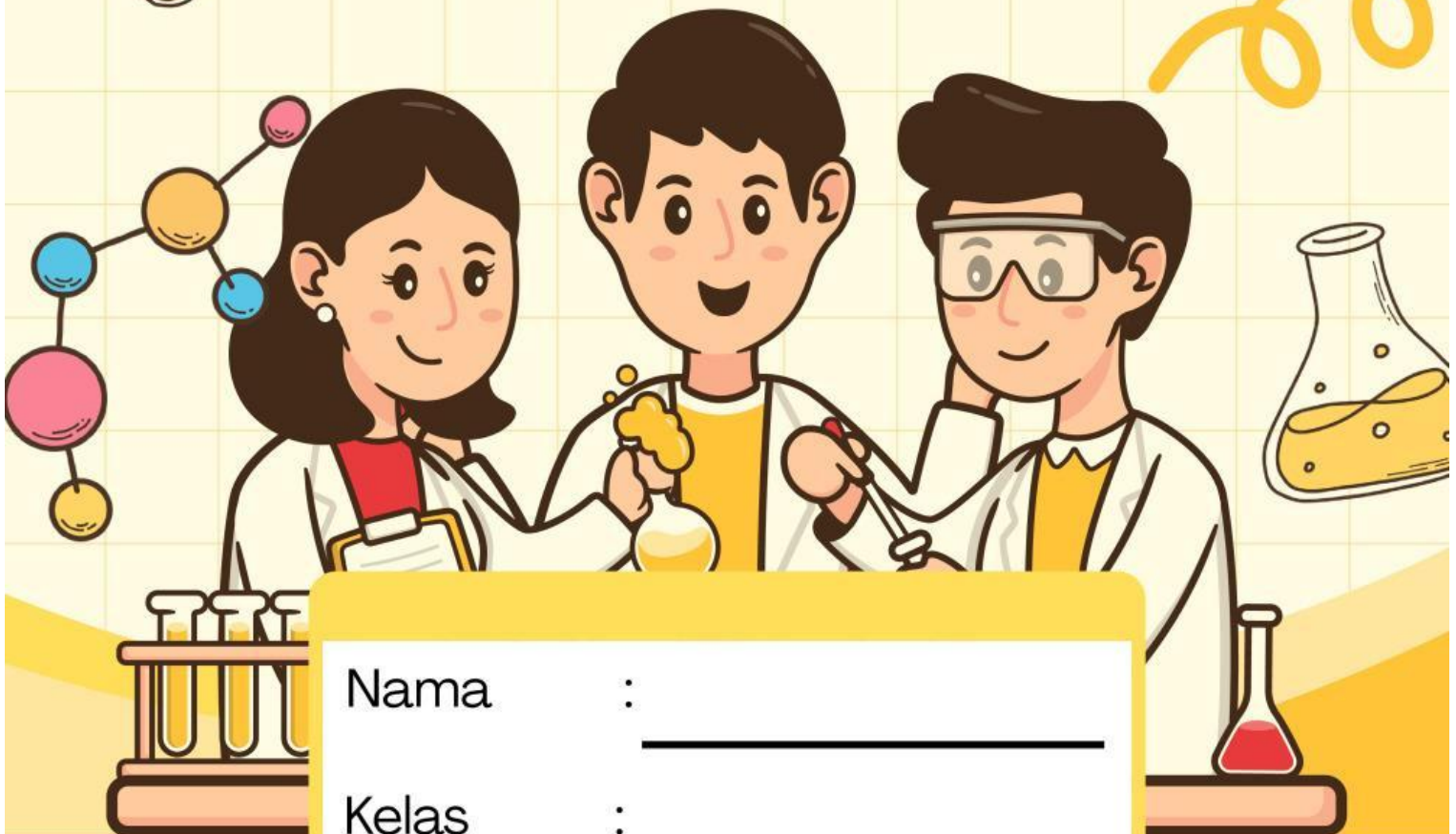


LKM

Penentuan entalpi reaksi
berdasarkan energi ikatan



TERMOKIMIA



Nama : _____

Kelas : _____

No. absen : _____



Tujuan Pembelajaran

1. Peserta didik mampu menjelaskan pengertian energi ikatan dan energi ikatan rata-rata.
2. Peserta didik mampu menentukan jumlah ikatan yang putus dan yang terbentuk pada suatu reaksi.
3. Peserta didik mampu menghitung perubahan entalpi (ΔH) reaksi berdasarkan data energi ikatan.



Petunjuk Penggunaan

1. Berdoalah sebelum mengerjakan.
2. Bacalah setiap soal dengan teliti dan tuliskan apa yang diketahui dan ditanyakan.
3. Gunakan rumus berikut untuk menyelesaikan soal:

$\Delta H \text{ reaksi} = \Sigma E \text{ ikatan putus (pereaksi)} - \Sigma E \text{ ikatan terbentuk (hasil reaksi)}$

4. Gambarkan struktur Lewis atau rumus bangun setiap zat agar jumlah ikatan mudah dihitung.
5. Tuliskan langkah penyelesaian secara runtut, lengkap dengan satuan kJ.
6. Tentukan juga apakah reaksi tergolong eksoterm (ΔH negatif) atau endoterm (ΔH positif).



Materi

A large, empty rectangular box with a thin black border and rounded corners, intended for writing or drawing.



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A large, empty rectangular box with a thin black border and rounded corners, intended for writing or drawing.



Soal 1

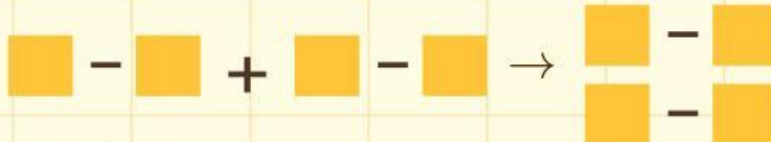
Diketahui energi ikatan:



klik here!

Hitunglah ΔH reaksi: $\text{H}_2 + \text{Cl}_2 \rightarrow 2 \text{HCl}$ $\Delta H_R = \text{_____ kJ}$

struktur lewis



penyelesaian

$$\Delta H_R = \sum EI \text{ _____} - \sum EI \text{ _____}$$

$$\Delta H_R = (\text{_____}(\text{_____}) + \text{_____}(\text{_____})) - (\text{_____}(\text{_____}))$$

$$\Delta H_R = (\text{_____}(\text{_____}) + \text{_____}(\text{_____})) - (\text{_____}(\text{_____}))$$

$$\Delta H_R = (\text{_____}) - (\text{_____})$$

$$\Delta H_R = \text{_____ kJ}$$

☐ Eksoterm

☐ Endoterm



Soal 2

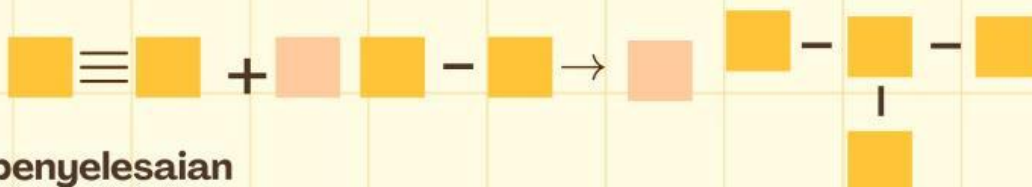
Diketahui energi ikatan:



klik here!

Hitunglah ΔH reaksi pembentukan amonia (proses Haber-Bosch): $\text{N}_2(\text{g}) + 3 \text{H}_2(\text{g}) \rightarrow 2 \text{NH}_3(\text{g})$ $\Delta H_R = \text{_____ kJ}$

struktur lewis



penyelesaian

$$\Delta H_R = \sum EI \text{ _____} - \sum EI \text{ _____}$$

$$\Delta H_R = (\text{_____}(\text{_____}) + \text{_____}(\text{_____})) - (\text{_____}(\text{_____}) + \text{_____}(\text{_____}))$$

$$\Delta H_R = (\text{_____}(\text{_____}) + \text{_____}(\text{_____})) - (\text{_____}(\text{_____}) + \text{_____}(\text{_____}))$$

$$\Delta H_R = (\text{_____}) - (\text{_____})$$

$$\Delta H_R = \text{_____ kJ}$$

☐ Eksoterm

☐ Endoterm



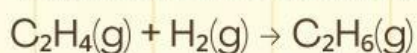
Soal 3

Diketahui energi ikatan:



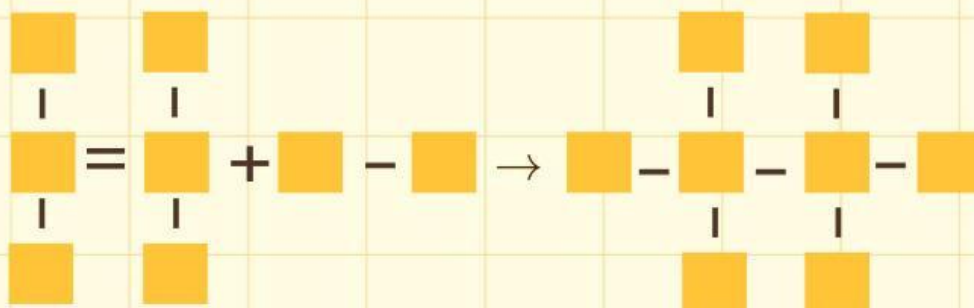
klik here!

Tentukan ΔH reaksi hidrogenasi etena menjadi etana:



$$\Delta H_R = \text{_____ kJ}$$

struktur lewis



penyelesaian

$$\Delta H_R = \sum \text{EI} \text{ _____} - \sum \text{EI} \text{ _____}$$

$$\Delta H_R = (\text{_____} (\text{_____}) + \text{_____} (\text{_____})) - (\text{_____} (\text{_____}) + \text{_____} (\text{_____}))$$

$$\Delta H_R = (\text{_____} (\text{_____}) + \text{_____} (\text{_____})) - (\text{_____} (\text{_____}) + \text{_____} (\text{_____}))$$

$$\Delta H_R = (\text{_____}) - (\text{_____})$$

$$\Delta H_R = \text{_____ kJ}$$

Eksoterm

Endoterm