

Équations à connaître

$$c = \lambda f$$

$$E = hf = \frac{hc}{\lambda}$$

$$\frac{hc}{\lambda} = \phi + e \cdot V_{\text{arrêt}}$$

$$A = N + Z$$

$$N = N_0 e^{-\lambda t}$$

$$N = \frac{m_{\text{éch}}}{M_{\text{at}}}$$

$$Q = (M_{\text{réactifs}} - M_{\text{produits}}) \cdot c^2$$

Équations à connaître venant des cours préalables

$$K = \frac{1}{2}mv^2$$

$$T_K = T_C + 273$$

Constantes fournies

$$e = 1,602 \times 10^{-19} \text{ C}$$

$$1 \text{ eV} = 1,602 \times 10^{-19} \text{ J}$$

$$\epsilon_0 = 8,854 \times 10^{-12} \frac{\text{C}^2}{\text{N} \cdot \text{m}^2}$$

$$m_e = 9,109 \times 10^{-31} \text{ kg}$$

$$hc = 1\,240 \text{ eV} \cdot \text{nm}$$

$$c = 2,998 \times 10^8 \frac{\text{m}}{\text{s}}$$

$$\sigma = 5,67 \times 10^{-8} \frac{\text{W}}{\text{m}^2 \cdot \text{K}^4}$$

$$R_\infty = 1,097 \times 10^7 \text{ m}^{-1}$$

$$h = 6,626 \times 10^{-34} \text{ J} \cdot \text{s}$$

$$1 \text{ u} = 1,661 \times 10^{-27} \text{ kg}$$

$$1 \text{ u} = \frac{931,5 \text{ MeV}}{c^2}$$

$$\frac{N_{^{14}\text{C}}}{N_{\text{C}}} = 1,30 \times 10^{-12}$$

Équations fournies

$$I = \sigma T^4$$

$$I = \frac{P}{A}$$

$$I = \frac{P}{4\pi r^2}$$

$$\lambda_{\text{max}} T = 2,898 \times 10^{-3} \text{ m} \cdot \text{K}$$

$$K_{\text{max}} = e \cdot V_{\text{arrêt}}$$

$$hf - \phi = K_{\text{max}}$$

$$\frac{hc}{\lambda} = E_h - E_b$$

$$\hbar = \frac{h}{2\pi}$$

$$v = \sqrt{\frac{e^2}{4\pi\epsilon_0 m r}}$$

$$v = \frac{n\hbar}{mr}$$

$$r = \frac{4n^2 \hbar^2 \pi \epsilon_0}{m e^2}$$

$$E_n = -\frac{13,60 \text{ eV}}{n^2}$$

$$\frac{1}{\lambda} = \frac{R_\infty}{Z^2} \left(\frac{1}{n_b^2} - \frac{1}{n_h^2} \right)$$

$$r = 1,20 \text{ fm} \cdot A^{1/3}$$

$$E_l = \Delta m \cdot c^2$$

$$E_l = [Zm_H + Nm_n - M_X]c^2$$

$$E_{l/n} = \frac{E_l}{A}$$

$$R = \lambda N = R_0 e^{-\lambda t}$$

$$t_{1/2} = \frac{\ln 2}{\lambda}$$

Équations optionnelles ou non essentielles

$$E_{\text{faisc}} = Nh f$$

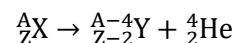
$$I = \frac{P}{A}$$

$$I_0 = \sigma T_0^4$$

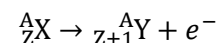
$$I_{\text{nette}} = \sigma(T^4 - T_0^4)$$

$$hf_{\text{seuil}} = \phi$$

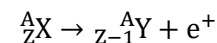
$$N_0 = \frac{m_{\text{éch}}}{M_{\text{at}}} \times \frac{n_{^{14}\text{C}}}{N_{\text{C}}}$$



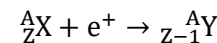
$$Q = (M_X - M_Y - M_{^4\text{He}})c^2$$



$$Q = (M_X - M_Y)c^2$$

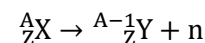


$$Q = (M_X - M_Y - 2m_e)c^2$$

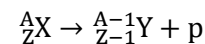


$$Q = (M_X - M_Y)c^2$$

$$Q = (M_{X^*} - M_X)c^2 = hf_\gamma$$



$$Q = (M_X - M_Y - m_n)c^2$$



$$Q = (M_X - M_Y - m_H)c^2$$