

## Entrainement aux manipulations de formules

Exprimer la grandeur demandée (entre parenthèses) en fonction des autres paramètres.

|                                                                                                     |                                                                             |
|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------|
| $\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} \quad (R)$                                             | $E_c = \frac{1}{2} m. v^2 \quad (v)$                                        |
| $U = E - r.I \quad (r)$                                                                             | $T = 2\pi \sqrt{\frac{l}{g}} \quad (g)$                                     |
| $V = \frac{4}{3}\pi.R^3 \quad (R)$                                                                  | $\frac{1}{C} = \frac{1}{C_1} + \frac{1}{C_2} \quad (C_1)$                   |
| $E = h.v \quad (v)$                                                                                 | $f_R = \frac{c - v_R}{c} f_E \quad (v_R)$                                   |
| $P.V = n.R.T \quad (T)$                                                                             | $E_{pe} = \frac{1}{2} k.x^2 \quad (k)$                                      |
| $\lambda = \sqrt{\frac{h^2}{2\pi.m.k_B.T}} \quad (T)$                                               | $E_{pp} = m.g.(z - z_0) \quad (z)$                                          |
| $P = \frac{n.R.T}{V - n.b} - \frac{a.n^2}{V^2} \quad (T)$                                           | $\gamma = \frac{1}{\sqrt{1 - \left(\frac{v}{c}\right)^2}} \quad (v)$        |
| $K_e = 10^{-pK_e} \quad (pK_e)$                                                                     | $E = m.c^2 \quad (m)$                                                       |
| $R_{\mu\nu} - \frac{1}{2} g_{\mu\nu}.R + \Lambda.g_{\mu\nu} = \kappa.T_{\mu\nu} \quad (g_{\mu\nu})$ | $\alpha = \frac{e^2}{2\varepsilon_0.h.c} \quad (h)$                         |
| $F_{A/B} = G \frac{m_A.m_B}{d^2} \quad (d)$                                                         | $F_{1/2} = \frac{1}{4\pi.\epsilon_0} \cdot \frac{q_1.q_2}{d^2} \quad (q_2)$ |
| $pK_a = pH - \log\left(\frac{[A^-]}{[AH]}\right) \quad ([A^-])$                                     | $v_{0,x} = v_0.\cos(\theta) \quad (\theta)$                                 |
| $M_w = \frac{2}{3}\log(M_0) - 6,07 \quad (M_0)$                                                     | $\lambda = \frac{h}{m.v} \sqrt{1 - \left(\frac{v}{c}\right)^2} \quad (v)$   |