
PHYS 220 - GENERAL PHYSICS II KNOW SHEET

1. Make sure that you indeed know everything from the *General Physics I Knowsheet!!*

2. $(1 + x)^n = 1 + n x + \frac{n(n-1)}{2!} x^2 + \dots$, $-1 < x < +1$. [Binomial Expansion]

Physical Constants: [Memorize as we encounter these in class.]

$$\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{ Nm}^2/\text{C}^2 \quad h = 6.63 \times 10^{-34} \text{ Js}$$

$$e = 1.6 \times 10^{-19} \text{ C} \quad m_e = 9.1 \times 10^{-31} \text{ kg} \quad c = 3 \times 10^8 \text{ m/s}$$

$$R = 8.31 \text{ J/mol K} \quad N_A = 6.02 \times 10^{23} \text{ mol}^{-1} \quad \mu_0 = 4\pi \times 10^{-7} \text{ T m/A}$$

Physical Formulae: [Memorize as we encounter these in class.]

$$pV = nRT \quad \Delta E_{th} = Q + W \quad \vec{F} = q\vec{E} + q\vec{v} \times \vec{B} \quad E = hf$$

$$\oint \vec{E} \cdot d\vec{A} = \frac{q_{encl}}{\epsilon_0} \quad \oint \vec{B} \cdot d\vec{A} = 0 \quad \vec{F}_{coul} = \frac{1}{4\pi\epsilon_0} \frac{qQ}{r^2} \hat{r}$$

$$\oint \vec{E} \cdot d\vec{s} = -\frac{d\Phi_B}{dt} \quad \oint \vec{B} \cdot d\vec{s} = \mu_0 \epsilon_0 \frac{d\Phi_E}{dt} + \mu_0 i_{encl} \quad i = \frac{dq}{dt}$$

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