$$\mathrm{c} = 3 \times 10^8 \text{ m/s} \tag{1}$$

$$k = 9.0 \times 10^9 \frac{\mathrm{N} \cdot \mathrm{m}^2}{\mathrm{C}^2} \tag{2}$$

$$\mathrm{e} = 1.6 \times 10^{-19}\mathrm{C} \tag{3}$$

$$\text{electron mass} = 9.1 \times 10^{-31} \text{ kg} \tag{4}$$

$$\text{proton mass} = 1.67 \times 10^{-27} \text{ kg} \tag{5}$$

$$W = \Delta E \tag{6}$$

$$W = F\Delta x \cos\theta \tag{7}$$

$$P = \frac{\Delta E}{\Delta t} \tag{8}$$

$$F_{elec} = q_{victim}\mathbb{E} \tag{9}$$

$$\mathbb{E} = k\frac{q_{source}}{r^2} \tag{10}$$

$$EPE = qV \quad \text{or} \quad U = qV \tag{11}$$

$$\mathbb{E} = \frac{\Delta V}{\Delta x} \tag{12}$$

$$i = \frac{\Delta q}{\Delta t} \tag{13}$$

$$V_{a,b} = iR \tag{14}$$

$$V_{a,b} \cdot i = P \tag{15}$$

$$\mathcal{E} = N\frac{\Delta\Phi}{\Delta t} \tag{16}$$

$$\frac{N_1}{N_2} = \frac{V_1}{V_2} \tag{17}$$

$$\Phi = BA\cos\theta \tag{18}$$

$$n_1 \sin\theta_1 = n_2 \sin\theta_2 \tag{19}$$

$$\frac{1}{f} = \frac{1}{d_i} + \frac{1}{d_o} \tag{20}$$

$$\frac{h_i}{h_o} = \frac{d_i}{d_o} \tag{21}$$

$$\frac{\text{path difference}}{d} = \sin\theta \tag{22}$$

$$\frac{x}{L} = \tan\theta \tag{23}$$

$$\frac{m\lambda}{d} = \sin\theta \tag{24}$$

$$T = \frac{1}{f} \tag{25}$$

$$v = f\lambda \tag{26}$$

$$\mathbf{F} = i\mathbf{l} \times \mathbf{B} \tag{27}$$

$$\mathbf{F} = q\mathbf{v} \times \mathbf{B} \tag{28}$$

$$\text{Particle in uniform circular motion } a = \frac{v^2}{r} \tag{29}$$