

$$\frac{1}{d_1} + \frac{1}{d_2} = \frac{1}{f}$$

$$m = \frac{-d_2}{d_1}$$

$$n_2 \sin \theta_2 = n_1 \sin \theta_1$$

$$m = \frac{f_0}{f_e}$$

$$\vec{E}_{rad} = \frac{1}{4\pi\epsilon_0} \frac{-q\vec{a}_\perp}{c^2 r}$$

$$\vec{S} = \frac{1}{\mu_0} \vec{E} \times \vec{B}$$

$$\langle S \rangle = F$$

$$E = cB$$

$$L = 4\pi r^2 F$$

$$E = E_0 \sin(kx - \omega t + \epsilon)$$

$$k = \frac{2\pi}{\lambda}$$

$$\omega = 2\pi f$$

$$I = I_0 \cos^2 \theta$$

$$m\lambda = d \sin \theta$$

Conversions and Constants

$$1 \mu\text{m} = 10^{-6} \text{m}$$

$$1 \text{nm} = 1 \times 10^{-9} \text{m}$$

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

$$q = 1.6 \times 10^{-19} \text{C}$$

$$\mu_0 = 4\pi \times 10^{-7} \frac{\text{T} \cdot \text{m}}{\text{A}}$$

$$\frac{1}{4\pi\epsilon_0} = 9 \times 10^9 \text{N} \cdot \text{m}^2/\text{C}^2$$