Exam 3 Cheat Sheet

Speed of light in a vacuum:

$$c = 3.0 \times 10^8 \text{ m/s} \qquad \text{(in a vacuum)}$$

Speed of light where n is the index of refraction:

$$v = \frac{c}{n} \qquad \text{(speed of light)}$$

Law of refraction:

$$n_1 \sin\theta_1 = n_2 \sin\theta_2 \qquad \text{(Snell's Law)}$$

When light refracts along the boundary ($n_2 > n_1$, light traveling from less to more dense):

$$\theta_c = \sin(\frac{n_2}{n_1}) \qquad \text{(Critical angle)}$$

Beam of light going through polarizing sheets:

$$I_1 = \frac{1}{2} I_0 \qquad \text{(one half rule)}$$

Going through another sheet:

$$I = I_1 \cos^2(\Delta\theta) \qquad \text{(cosine-squared)}$$