
Waves

$$v = f\lambda$$

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

$$\theta_i = \theta_r$$

$$n = \frac{c}{v}$$

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

$$\frac{n_2}{n_1} = \frac{v_1}{v_2} = \frac{\lambda_1}{\lambda_2}$$

c = speed of light in a vacuum

f = frequency

n = absolute index of refraction

T = period

v = velocity or speed

λ = wavelength

θ = angle

θ_i = angle of incidence

θ_r = angle of reflection

Modern Physics

$$E_{\text{photon}} = hf = \frac{hc}{\lambda}$$

$$E_{\text{photon}} = E_i - E_f$$

$$E = mc^2$$

c = speed of light in a vacuum

E = energy

f = frequency

h = Planck's constant

m = mass

λ = wavelength

Geometry and Trigonometry

Rectangle

$$A = bh$$

A = area

b = base

Triangle

$$A = \frac{1}{2}bh$$

C = circumference

h = height

r = radius

Circle

$$A = \pi r^2$$

$$C = 2\pi r$$

Right Triangle

$$c^2 = a^2 + b^2$$

$$\sin \theta = \frac{a}{c}$$

$$\cos \theta = \frac{b}{c}$$

$$\tan \theta = \frac{a}{b}$$

