

formulas

Snells law

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

n_1 = index of refraction (medium 1)

θ_1 = angle of incidence

n_2 = index of refraction (medium 2)

θ_2 = angle of refraction

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

n = index of refraction

c = speed of light in vacuum

v = speed of light in medium

$$v = f\lambda$$

v = speed of light

f = frequency

λ = wavelength

Lenses

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

f = focal length

d_i = image distance

d_o = object distance

$$\frac{h_i}{h_o} = \frac{-d_i}{d_o} = M$$

h_i = image height

h_o = object height

d_i = image distance

d_o = object distance

M = magnification

$$\frac{h_i}{h_o} = \frac{-d_i}{d_o}$$

$$\frac{h_i}{h_o} = m$$

$$\frac{-d_i}{d_o} = m$$

inverse = real

upright = virtual