$\theta_i = \theta_r$ $c = f\lambda$

θ_i = angle of incidence

θ_r = angle of reflection

c = speed of light 3×10^8 m/s

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

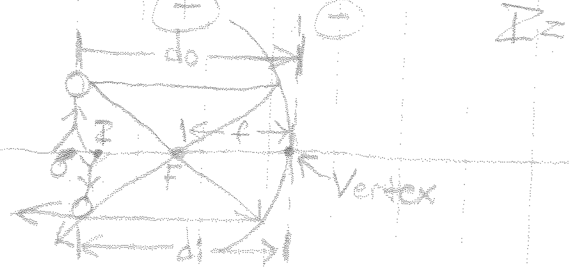
f = focal Δd

do = obj Δd

di = Image Δd (to vertex)

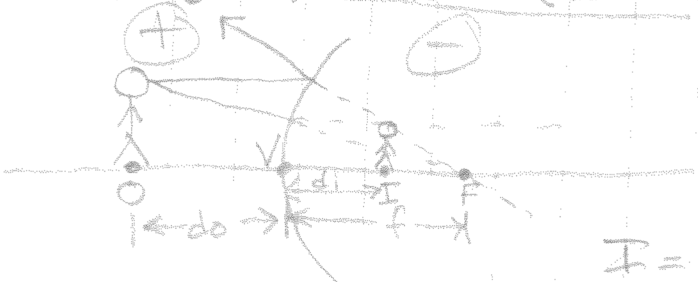
Converging (+) mirrors: (concave)

ray diagram

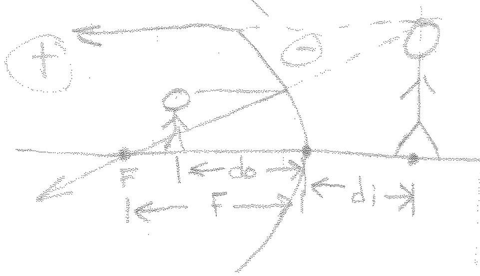


I = Inverted real

Converging (−) mirrors: (convex)



I = virtual smaller, upright



I = upright virtual

K = Constant of propotionality [N/m]

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

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

$n_1 \sin\theta_i = n_2 \sin\theta_r$

n = index of refraction

θ_c = critical angle

$n_1 \sin\theta_c = n_2 \sin 90°$

$\theta_c = \sin^{-1}\left(\frac{n_2}{n_1}\right)$

$n_{water} \approx 1$

$n_{air} \approx 1.33$

$P = \frac{1}{f} = \frac{1}{d_{o(w/\ glasses)}} + \frac{1}{d_{o(w/o\ glasses)}}$

P = Power of lens dioters (m^{-1})

p = obj. distance

$\frac{1}{f} = \frac{1}{p} + \frac{1}{q}$ $\frac{1}{f_{(total)}} = \frac{1}{f_1} + \frac{1}{f_2}$

$m = \frac{h_i}{h_o} = \frac{d_i}{d_o}$ $m = \frac{\text{nearpoint}}{d_o}$

m = magnification

$\lambda = \frac{dx}{L}$

λ = wavelength

d = d between slits

x = d between bands

L = slit to screen

$B = \frac{F}{qv}$ $\phi = BA$ $V = \frac{N\Delta\phi}{\Delta t}$

B = Strength of magnetic field [N/A·m = Tesla (T)]

$\frac{V_1}{V_2} = \frac{N_1}{N_2}$ F = ILB

q = Charge [Coulombs]

T = Tesla

Charge of protons or electrons $= 1.60\times10^{-19}$C

ϕ = Magnetic Flux [Wb = T·m²]

t = time [s]

N = # of turns in wire

V = pot'l dif. [V]

A = area of flux lin

L = length of wire

I = curre [A]