

Interference

- An observed phenomena resulting from the superposition of waves

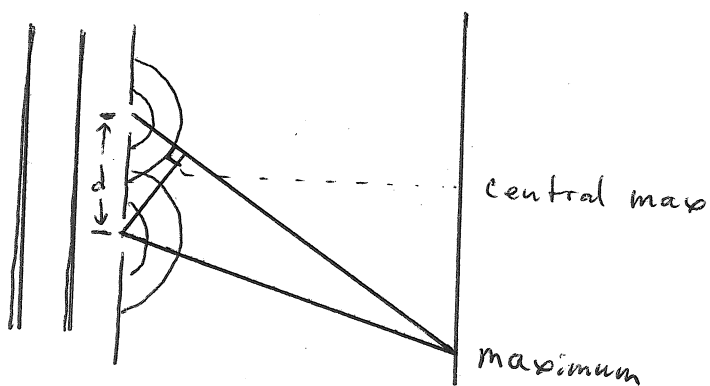
Constructive Interference

- wave disturbances that add together resulting in an amplified disturbance

Destructive Interference

- wave disturbances that add together resulting in less disturbance.

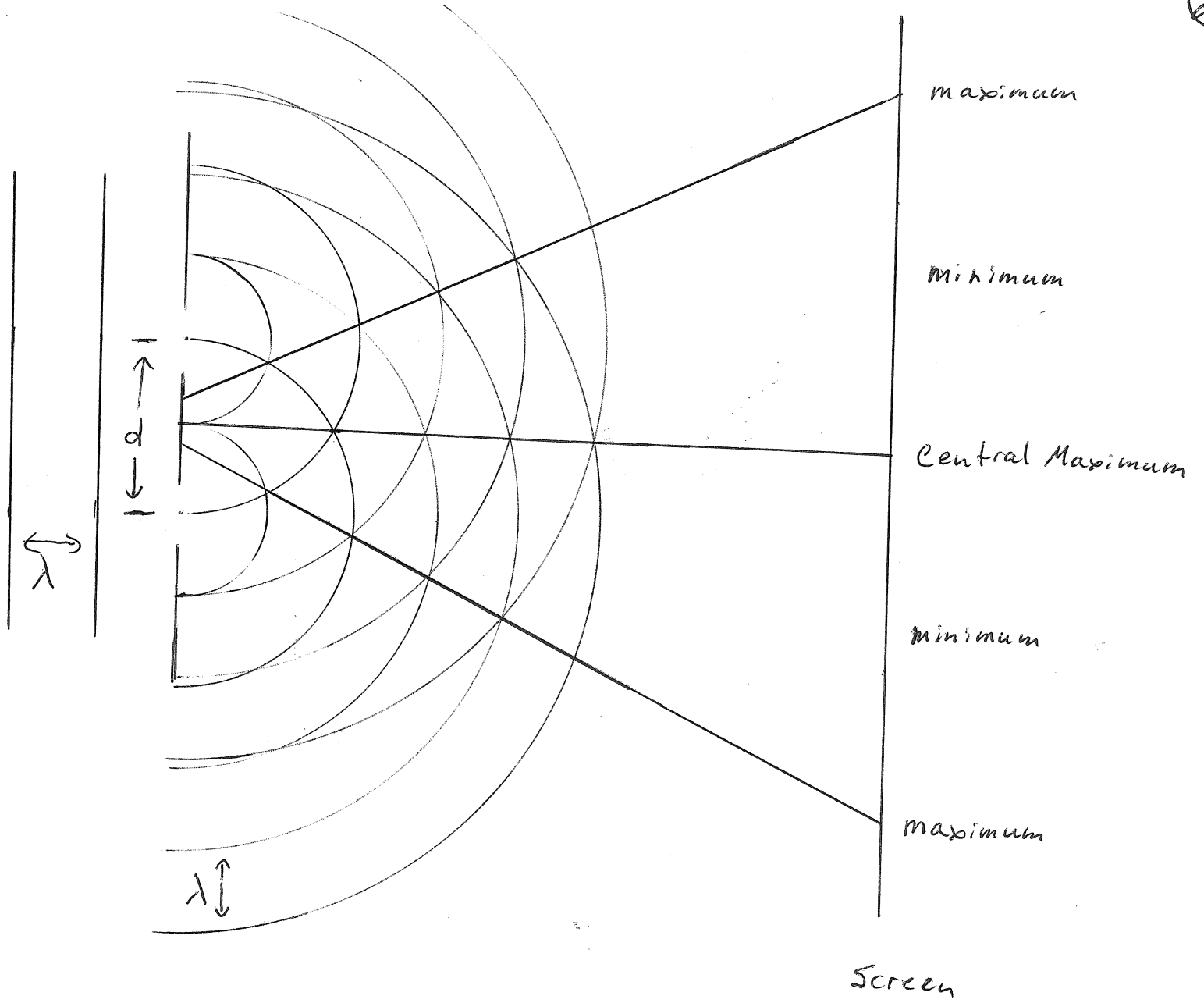
Double Slit Interference



- Creates a set of alternating dark and light regions on a distant screen.

Double Slit Interference

(2)



Coherent

- name given to light rays that have a constant phase difference

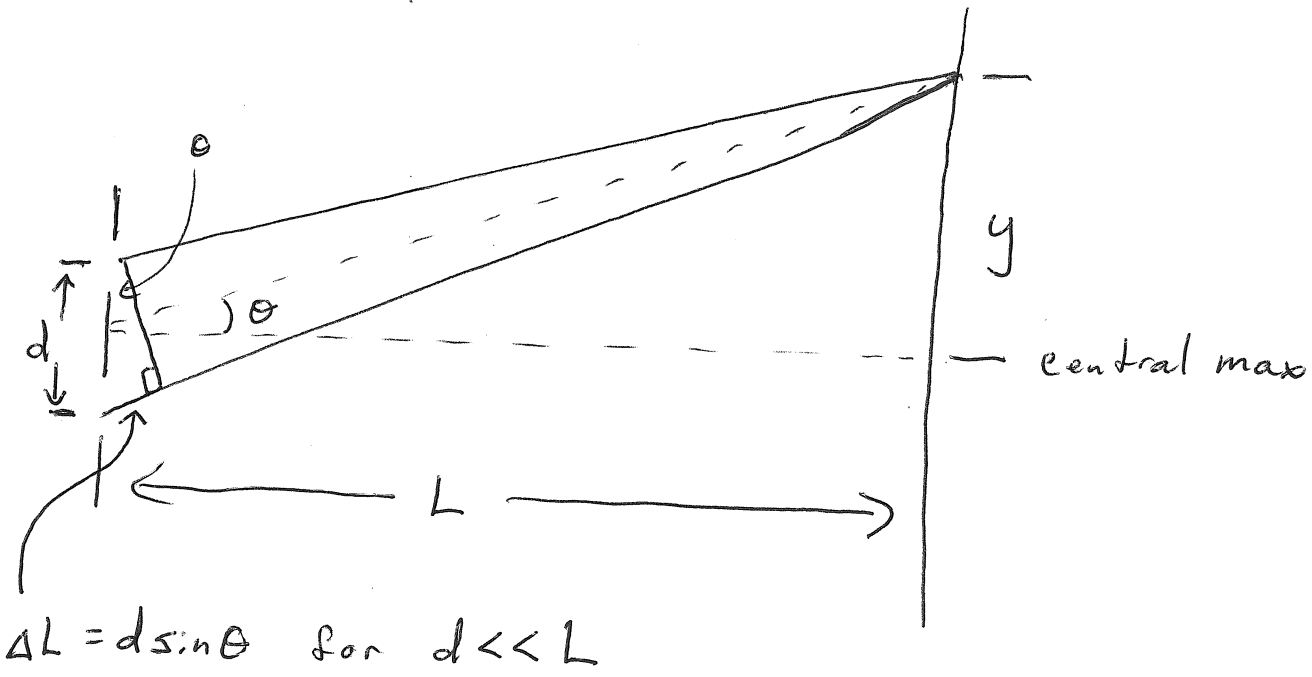


totally constructive

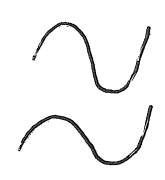
or



partially constructive



Constructive interference condition (Bright Fringes)
 of same phase at same time



Even # of λ spacing

$$\Delta L = n \lambda$$

$$d \sin \theta = n \lambda$$

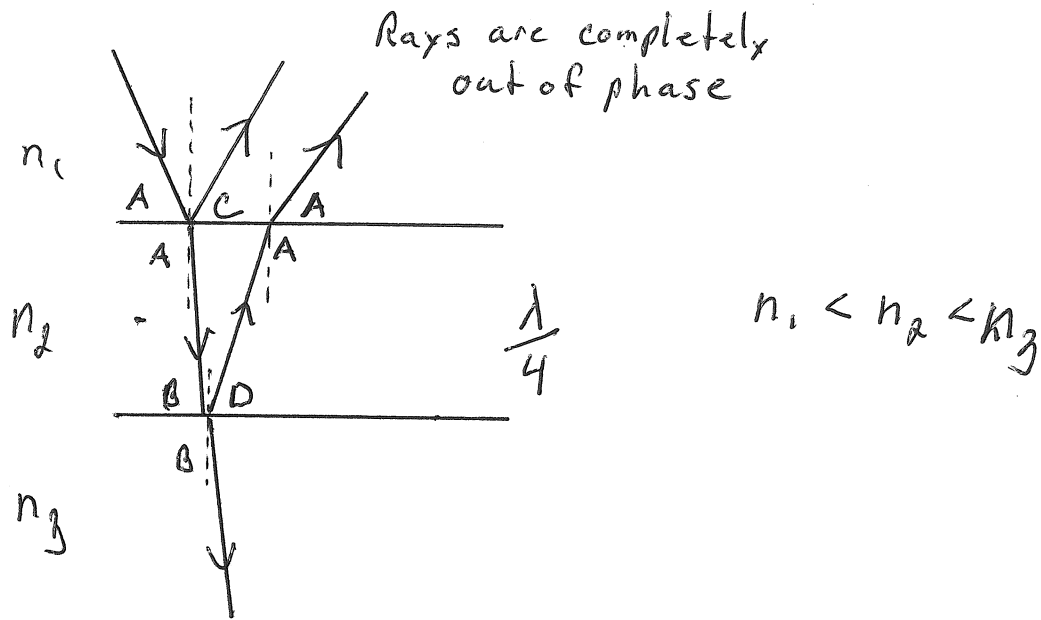
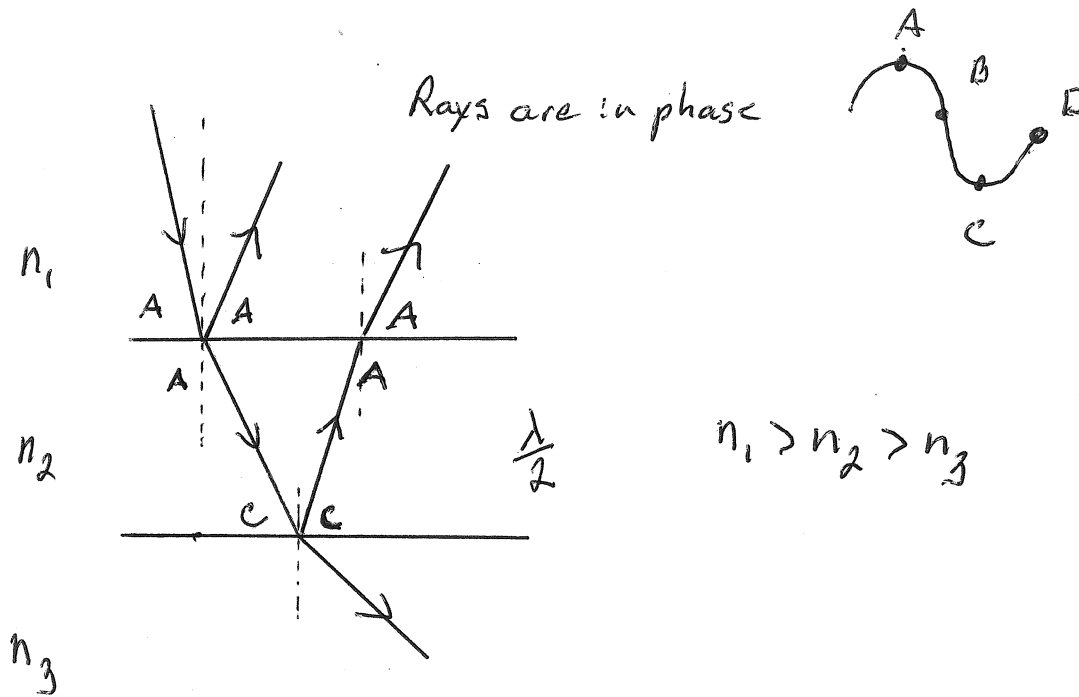
θ = angular height

n = number or order of bright fringe

d = slit spacing (m) λ = wavelength (m)

Thin Film Interference

⑤



Thin film interference occurs because of a thin layer of transparent material has a different index of refraction than surrounding material.