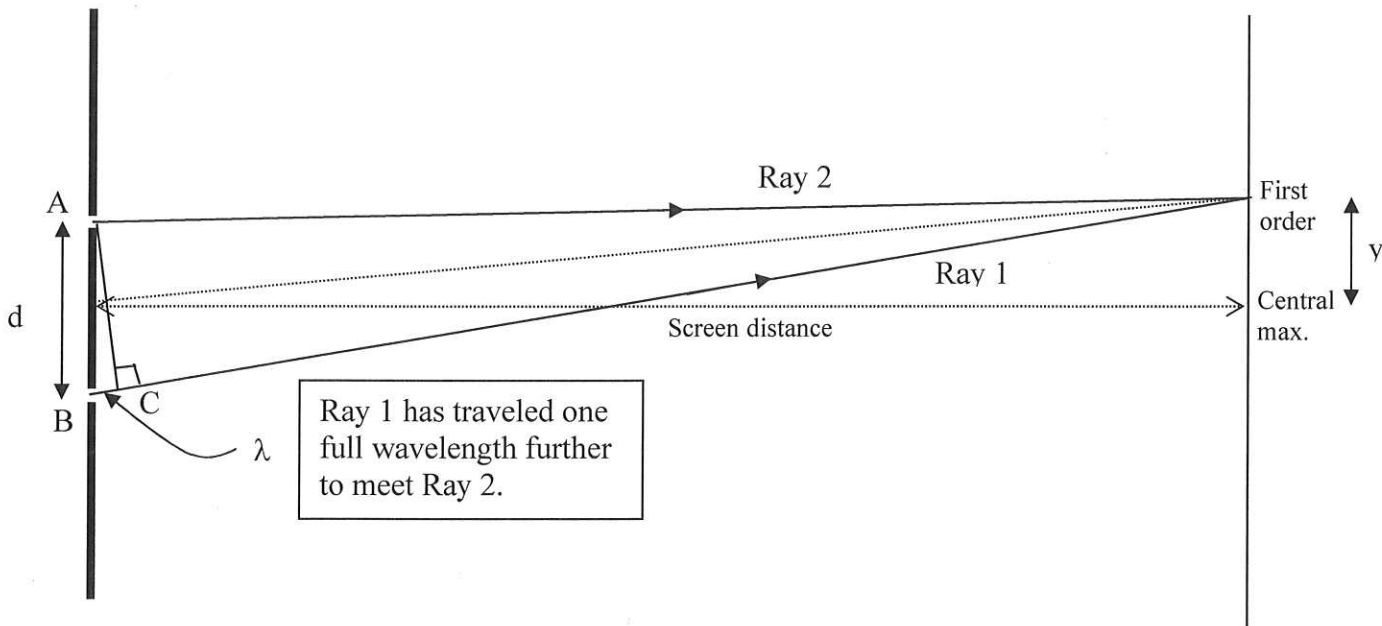# Young's Double Slit Experiment
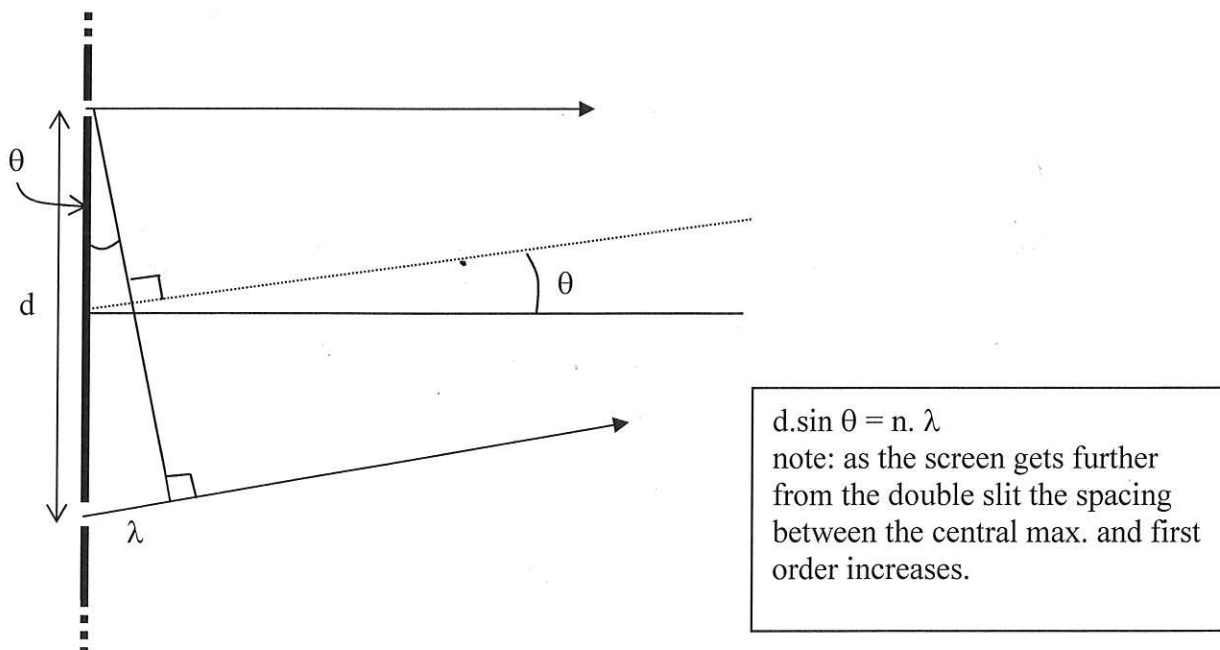
Consider monochromatic light passing through a double slit . The light diffracts producing spherical wavefronts. The diagram below shows two light rays (lines showing the direction of a point on a wavefront) meeting a screen producing a first order bright spot.
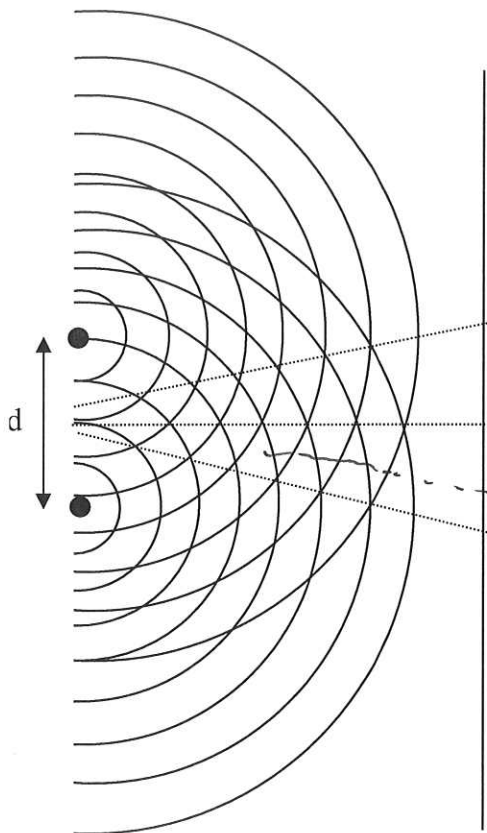

Assume that the slit separation "d" is very small compared to the screen distance.
i.e slit separation less than a millimeter, screen distance several metres.
Consider the triangle bounded by A, C , to the first order. This is an isosceles triangle.
The base side can be assumed to form a 90 degree angle with the 2 rays. (base angles of an isosceles triangle approach 90 degrees when the equal sides >> base side.)
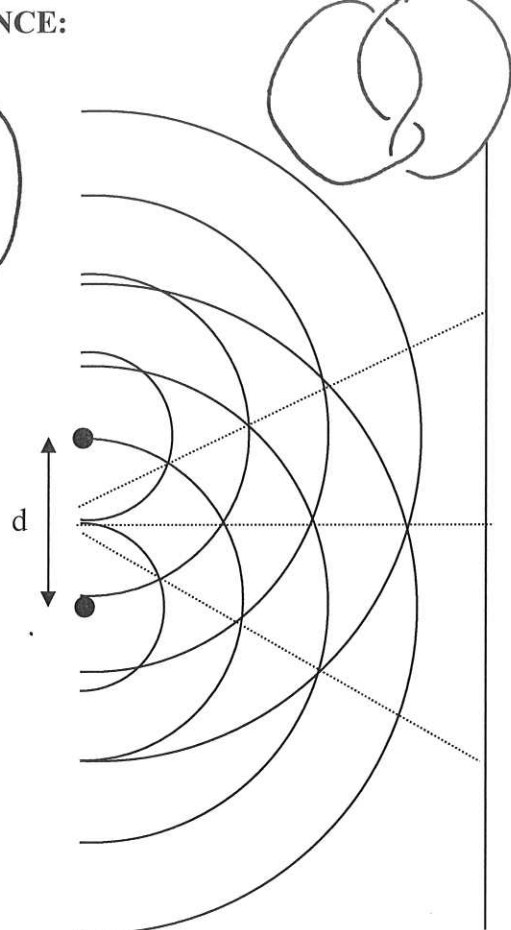
Consider a magnified view of the double slit

$d.\sin \theta = n. \lambda$
note: as the screen gets further from the double slit the spacing between the central max. and first order increases.

First order
PD = 1

Central max.
Path dif = 0
Nodal.
First order Antinodal.
PD = 1

Notes:
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