

i.e. the 1<sup>st</sup> order maxima lies on either side of the central maxima at a distance  $\lambda D/d$  from the center of the screen.

Similarly For  $n = 2$ , By equation (4)  $y_2 = \pm 2\lambda D/d$

Width of a dark band i.e. the distance between two consecutive maxima

$$\beta' = y_n - y_{n-1}$$

$$\beta' = \frac{n\lambda D}{d} - \frac{(n-1)\lambda D}{d}$$

or

$$\beta' = \frac{\lambda D}{d} \dots\dots\dots (5)$$

Since,  $\beta'$  doesn't depend upon  $n$  it is constant i.e. width of all the dark bands is same on the screen.

### **For destructive interference:**

$$\Delta x_0 = \pm (2m - 1)(\lambda/2) \quad (m = 1, 2, 3, \dots)$$

[ To distinguish between the expression for maxima and that for minima we are denoting the number of dark fringes as 'm']