Maxima (*i.e.* total constructive interference, $p_{tot}^2 = p_{o_1}^2 + p_{o_2}^2$ occur when cos $\delta = +1$, *i.e.* when: $\delta = 0, \pm 2\pi, \pm 4\pi, \pm 6\pi, \ldots = 2n\pi$, $n = 0, \pm 1, \pm 2, \pm 3, \ldots$ corresponding to
$\Delta L/\lambda = d \sin\theta/\lambda = 0, \pm 1, \pm 2, \pm 3, \ldots = 2n/2 = \text{n}$, i.e.
$\Delta L = d \sin\theta = 0\lambda, \pm 1\lambda, \pm 2\lambda, \pm 3\lambda, \ldots = 2n\lambda/2 = n\lambda$.

Minima (*i.e.* total destructive interference, $p_{tot}^2 = p_{o_1}^2 - p_{o_2}^2$ occur when cos $\delta = -1$, *i.e.* when $\delta = \pm\pi, \pm 3\pi, \pm 5\pi, \pm 7\pi, \ldots = (2n+1)\pi$, $n = 0, \pm 1, \pm 2, \pm 3, \ldots$ corresponding to
$\Delta L/\lambda = d \sin\theta/\lambda = \pm 1/2\ , \pm 3/2, \pm 5/2, \ldots = (2n+1)/2$, i.e.
$\Delta L = d \sin\theta = \pm\lambda/2, \pm 3\lambda/2, \pm 5\lambda/2, \ldots = (2n+1)\lambda./2$.

As drawn in the above figure, this phasor diagram represents a "snapshot" in time – *i.e.* at some particular time *t*. As time *t* progresses, the entire phasor triangle precesses (i.e. rotates with angular frequency ω about its origin (the base point of over-pressure amplitude # 1)) in a counter-clockwise direction.

Note that the acoustical interference of two sound sources with each other – *e.g.* two loudspeakers – is the analog of Young's two-slit interference experiment in optics!

Note also that the sound intensity, I ($Watts/m^2$) is proportional to the (modulus) square of the over-pressure amplitude – *i.e.* $I(z,t) \sim p^2(z,t)$. Thus, we can rewrite the above formula in terms of sound intensities: $I_{tot} = I_1 + I_2 + 2\sqrt{I_1}\sqrt{I_2}\cos\delta$.

The sound intensity distribution $I_{tot}(x)$ *vs.* x ($= \delta$) = transverse distance (at $z = L$) is shown in below for equal intensities from two sound sources, $I_1 = I_2 = I_o = 1$, when $I_{tot}(x) = 2I_o[1+\cos(x)]$.