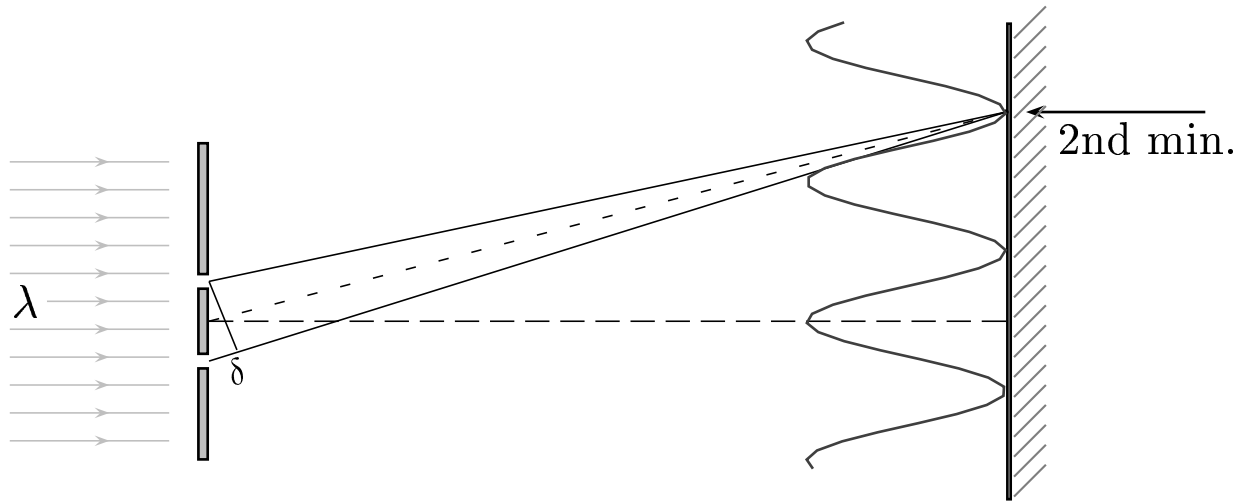


Consider the setup of a double slit experiment.

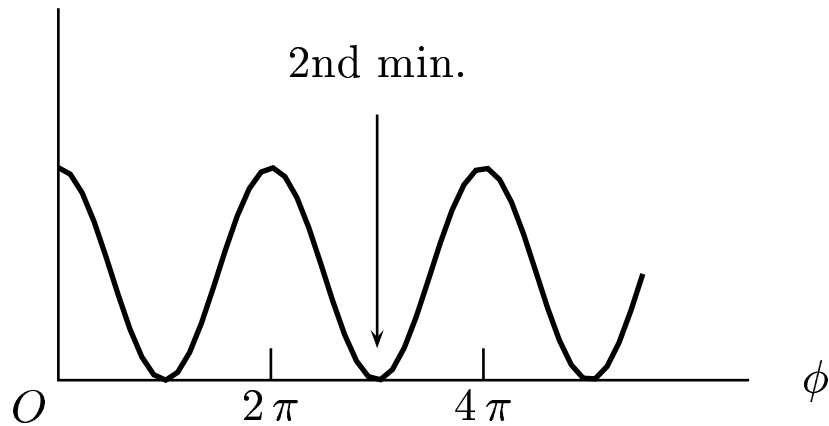


Find the second-minimum phase angle ϕ and the path difference δ .

- A) $\phi = \pi$ and $\delta = \frac{\lambda}{2}$.
- B) $\phi = 2\pi$ and $\delta = \lambda$.
- C) $\phi = 3\pi$ and $\delta = \frac{3\lambda}{2}$.
- D) $\phi = 4\pi$ and $\delta = 2\lambda$.

The intensity $I = I_0 \cos^2 \left(\frac{\phi}{2} \right)$. By inspection, the second minimum

occurs at $\phi = 3\pi$, or $\delta = \frac{3\lambda}{2}$. See sketch below.



Answer **C**.

37.03-01 Double Slit Experiment 2004-3-24