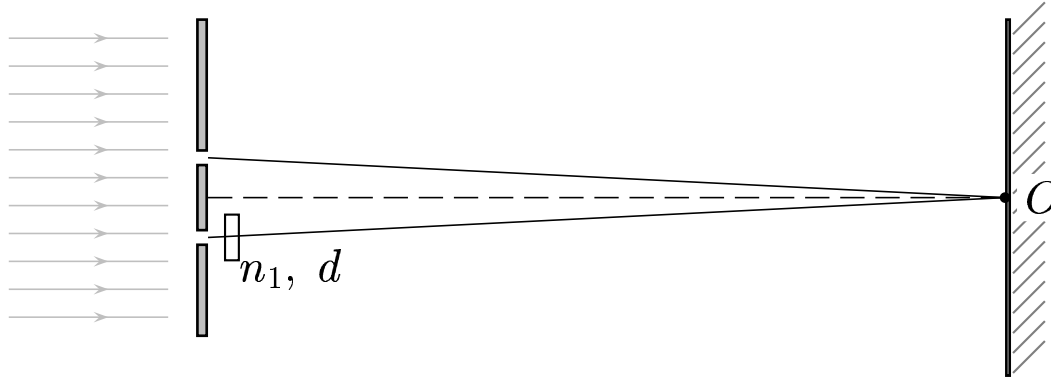


Consider the double slit setup. The lower slit is covered by a plastic with a thickness $d = 2 \mu$, index of refraction $n_1 = 1.5$. The Incident wave has wavelength $\lambda = 0.5 \mu$.



Find the phase angle $\phi = |\phi_2 - \phi_1|$ at O .

- A) $\phi = \pi$.
- B) $\phi = 2\pi$.
- C) $\phi = 3\pi$.
- D) $\phi = 4\pi$.

$$\phi = \phi_{med} = k d (n_1 - 1).$$

$$\phi_{med} = \frac{2\pi}{\lambda} d (n_1 - 1) = \frac{2\pi}{0.5} \times 2 \times (1.5 - 1) = 4\pi.$$

Therefore, $\phi = 4\pi$.

Answer **D**.