Consider the setup of a double slit experiment.

Find the third-minimum phase angle $\phi$ and path difference $\delta$.

A) $\phi = 3\pi$ and $\delta = \frac{3\lambda}{2}$.
B) $\phi = 4\pi$ and $\delta = 2\lambda$.
C) $\phi = 5\pi$ and $\delta = \frac{5\lambda}{2}$.
D) $\phi = 6\pi$ and $\delta = 3\lambda$. 
The intensity \( I = I_0 \cos^2 \left( \frac{\phi}{2} \right) \).

By inspection, the minimum sequence is at \( \frac{\phi}{2} = \frac{\pi}{2}, \frac{3\pi}{2}, \frac{5\pi}{2} \). So the third minimum occurs at

\[
\phi = 5\pi, \quad \text{or} \quad \delta = \lambda \frac{\phi}{2\pi} = \frac{5\lambda}{2}
\]

Answer C.

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