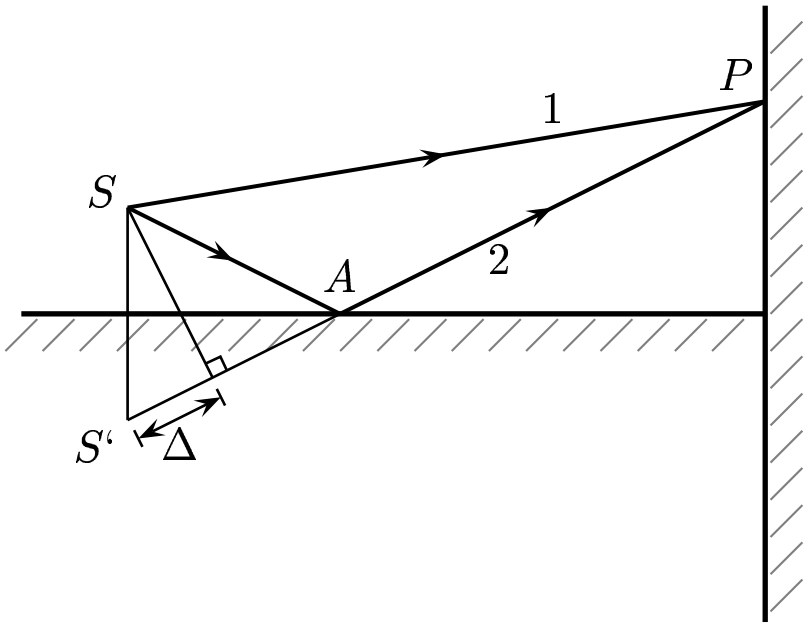
Consider the superposition of a direct ray, #1 and a reflected ray, #2 at P, where reflection is by a mirror at A.



Find $k\,\Delta$ values which lead to maxima.

A) $k\,\Delta = \pi,\ 3\,\pi,\ 5\,\pi\ \cdots$

B) $k\,\Delta = 0,\ 2\,\pi,\ 4\,\pi\ \cdots$

$$\phi = \phi_{path} + |\phi_{refl1} - \phi_{refl2}|.$$

For the present set up, $\phi_{path} = k\,\Delta$. The phase angle contributed by the reflection is: $|0 - \pi| = \pi$. So maxima occur where the phase angle is:

$$\phi = 0,\ 2\,\pi,\ 4\,\pi, \cdots = k\,\Delta + \pi.$$

In other words $k\,\Delta = \pi,\ 3\,\pi,\ 5\,\pi\ \cdots$

Answer **A**.

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