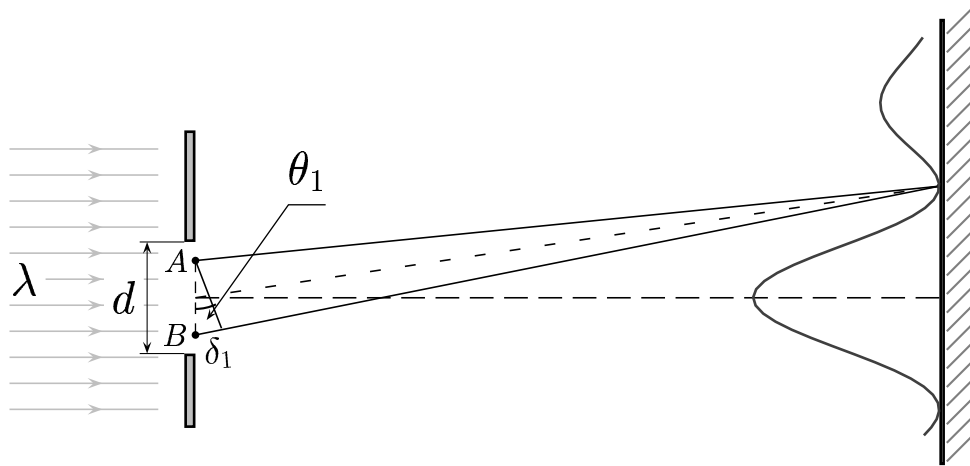


B. Represent a single-slit of width d by two effective point-sources A and B .



Determine the path difference δ_1 at the first minimum.

- A) $\delta_1 = \frac{\lambda}{4}$
- B) $\delta_1 = \frac{\lambda}{2}$
- C) $\delta_1 = \frac{3\lambda}{4}$
- D) $\delta_1 = \lambda$

At the first minimum the phase difference is $k \delta_1 = \pi$. Therefore

$$\delta_1 = \frac{\pi}{k} = \frac{\pi}{\frac{2\pi}{\lambda}} = \frac{\lambda}{2}$$

Answer **B**.