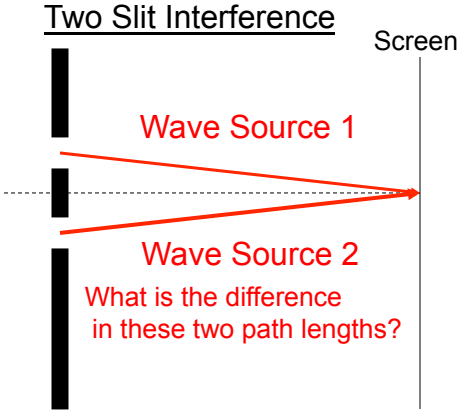
Two Slit Interference



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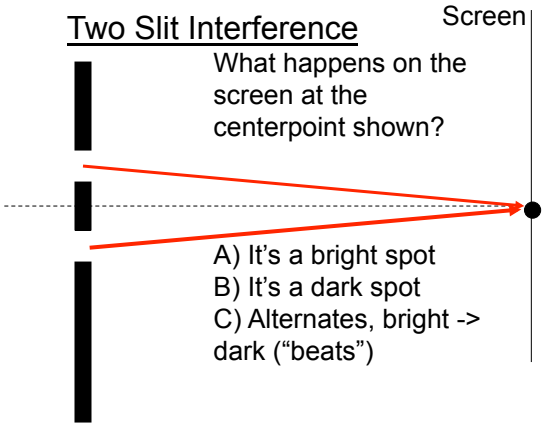

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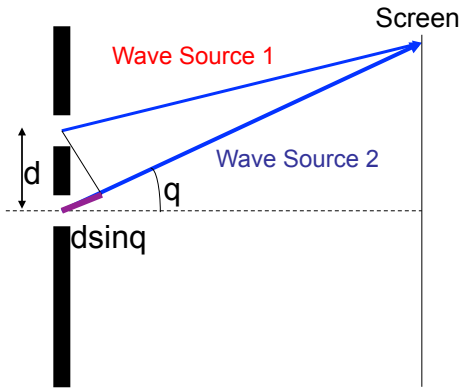
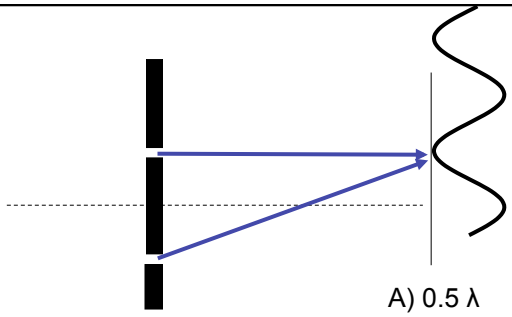




What is the difference in these two path lengths?

A) 0.5 λ
B) λ
C) 1.5 λ
D) 2 λ
E) None of these

Red light and green light are both shining on the same double slit (or, grating). Which pattern has the bright spots spread farther apart?

A) Green light bright spots are farther apart

B) Red light bright spots are farther apart.

C) All bright spots are equally far apart

Violet light (wavelength λ) passes through 2 slits separated by d and forms a diffraction pattern on a screen. If the violet light is replaced with red light (2λ) the original spatial pattern on the screen is reproduced if the slit distance is changed to ....

A) d/2 (and I am confident about this)

B) d/2 (but I am not very confident about this)

C) 2d (and I am confident about this)

D) 2d (but I am not very confident about this)

E) Something else (!!)

Consider a diffraction pattern produced by a LASER through 2 slits separated by distance d. Now "d" is increased a little. To maintain the same pattern on the screen...

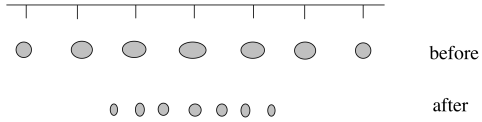
A) The wavelength of light should be increased.
B) The wavelength should be decreased.
C) The pattern did not change when d changed, so do nothing.
D) Something else/none of these

Two speakers put out the same pure steady tone, but one is wired backwards, so it is 180° out of phase with the other.
What does the listener at point P hear?

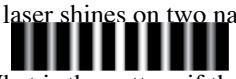
A) Pure steady tone, like a single speaker alone
B) Pure steady tone, doubly loud
C) Near silence
D) Beats ("louder and softer" over and over)

A double slit exp't is changed so that the pattern ***covers a smaller portion on the screen***. What could account for the smaller pattern?

A) Screen was moved further from the slits.
B) λ of the laser light was decreased
C) The slit spacing was reduced.
D) The laser was moved closer to the slits
E) More than one of these.



A laser shines on two narrow slits, producing:



What is the pattern if the *left slit* is covered up?

A)  Same (but dimmer)

B)  Left side goes dark

C)  Every other max disappears

D)  "fades away" from center

E) ? ? ? Something else...

Laser light, wavelength λ, illuminates a mask with a 2 slits. You see exactly 3 bright spots (a central one, +1 on each side). What can you conclude about the slit spacing d?

A) $d>\lambda$ and I (and/or my group) are confident
B) $d>\lambda$ (not so confident!)
C) $d<\lambda$ and I (and/or my group) are confident
D) $d<\lambda$ (not so confident!)