Recall, for 2 slits:
$d \sin\theta = m \lambda$ => MAXIMA (bright spots)

Red and green light are both shining on the same double slit. 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 ....

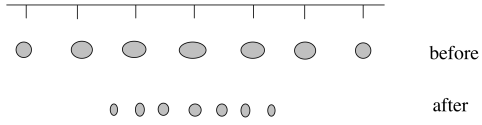
A) d/2 (and I am confident about this)
B) d/2 (but I am not very confident about this)
C) 2d (and I am confident about this)
D) 2d (but I am not very confident about this)
E) Something else (!!)

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...

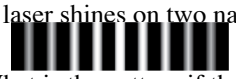
A) The wavelength of light should be increased.
B) The wavelength should be decreased.
C) The pattern did not change when d changed, so do nothing.
D) Something else/none of these

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?

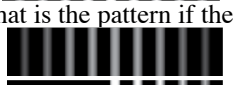
A) Screen was moved further from the slits.
B) λ of the laser light was decreased
C) The slit spacing was reduced.
D) The laser was moved closer to the slits
E) More than one of these.



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>λ and I (and/or my group) are confident
B) d>λ (not so confident!)
C) d<λ and I (and/or my group) are confident
D) d<λ (not so confident!)

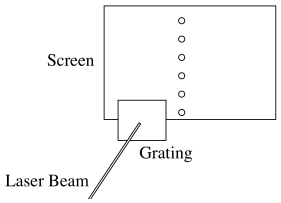
Laser light illuminates a mask with a 2 slits. As the slit spacing gets larger and larger, until it starts become “macroscopic” (>> λ), what happens to the interference pattern?

A) More and more bright spots, which get closer and closer together
B) More and more bright spots, which get farther and farther apart
C) Fewer and fewer bright spots, but the ones you have get closer and closer together
D) Fewer and fewer bright spots, which get farther and farther apart.

The Hubble Space Telescope has a "lens" (actually a mirror) of diameter of a couple of meter.
For which color light will the HST have the BEST resolution?

A) Blue B) Yellow C) Red
D) Resolution is independent of color.

What is the orientation of the grating producing this pattern?



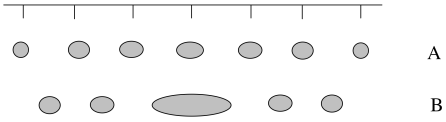
A) Vert. slits 

B) Horiz. slits 

C) Grid 

Laser light illuminates two different samples, one is "single slit" with width D, one is "two-slit" diffraction grating with tiny slits, that are ”D" apart.

Which pattern arises from the "two-slit" grating?



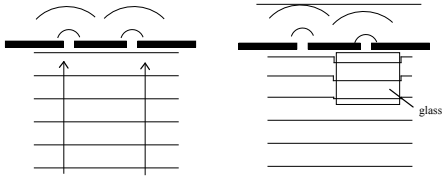
A laser shines through a double slit and the interference pattern is measured. The room is then filled with water and the experiment is repeated (the laser is water-proof). The separation of intensity maxima on the screen...

A) increases B) decreases
C) stays the same.

Hint: wave speed $v = \lambda f$ and the frequency of light remains constant as light passes from one medium to another.

A small piece of glass is in front of the right slit. (the right slit thus emits a wavefront a little later than the left slit) After the glass is inserted, the intensity pattern on the screen is...

A) unchanged B) shifts to the right
C) shifts left D) None of these.



Light illuminates a single slit whose width is 2.5 times the wavelength of the light ($D = 2.5\ \lambda$). How many minima will appear to each side of the central maximum?

A) 0
B) 1
C) 2
D) 3
E) > 3

White light illuminates a grating. What does the pattern (colors) on the screen look like?

A) Only white maxima
B) All maxima of different colors
C) Central maximum is white, to both sides maxima are separated by colors
D) No maxima at all
E) Something else.

Nominal track separation on a CD is 1.6 μm (1.6 E-6 m). Is it possible to separate visible light (400-700 nm, 1 nm = 1E-9 m) with it?

A) Yes, of course !
B) Yes, I guess.
C) No, of course not !
D) No, I guess.
E) I do not know how to answer this question.