Light with a wavelength of 500 nm is passed through a slit with a width a= 1 mm

The first minimum in the diffraction pattern will occur at an angle of about _____.

A) 1 radian
B) 10^{-1} radian
C) 10^{-2} radian
D) 10^{-3} radian

Ans. D

In a two slit interference experiment, how does the separation between peaks change if the distance between slits is increased?
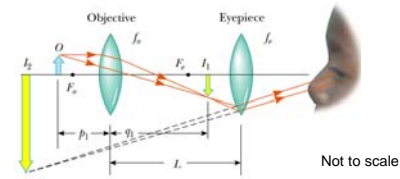
A. Increase
B. Decrease
C. Stays the same
D. Indeterminate

Ans. B

In a two slit interference experiment how does the distance between the peaks on the screen change if the wavelength of the light is increased?

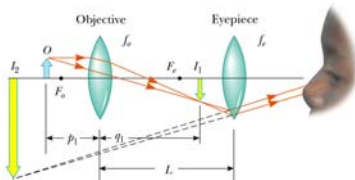A. increases
B. decreases
C. stays the same
D. indeterminate

Ans. A

The drawing is not to scale. In order to increase the size of the real image I_1 produced by the objective _____.
A) the object should be moved closer to F_o
B) the object should be moved away from F_o
C) the object should be moved so p_1 is less than F_o
D) the object should be moved so $p_1 = F_o$

Ans. A

The picture is not to scale. Suppose the image is much larger than the object. In that case the magnification due to the objective lens is approximately _____.

A) $-L/f_e$
B) $-L/f_o$
C) $-f_o/L$
D) $-f_e/L$

Ans. B

You are a survivor on a desert island and want to make a fire by focusing sunlight. You can use _____.
A) a flat sheet of glass from Josh.
B) the eye glasses from Alex who is nearsighted.
C) the eye glasses from Brenda who is farsighted.
D) the compact mirror for Rhoda.

Ans. C

Two lenses in contact have focal lengths of 10 cm and -20 cm. The power of the combination of lenses is _____.

A) 2.0 diopters

B) 5.0 diopters

C) - 5.0 diopters

D) -2.0 diopters

Ans. B