Concept Items

17.1 Understanding Diffraction and Interference 1.

Which behavior of light is indicated by an interference pattern?

a. ray behavior
b. particle behavior
c. corpuscular behavior
d. wave behavior

2.

Which behavior of light is indicated by diffraction?

a. wave behavior
b. particle behavior
c. ray behavior
d. corpuscular behavior

17.2 Applications of Diffraction, Interference, and Coherence 3.

There is a principle related to resolution that is expressed by this equation.

$\theta = \frac{\lambda}{D}$

17.8

What is that principle stated in full?

4.

A principle related to resolution states, "Two images are just resolved when the center of the diffraction pattern of one is directly over the first minimum of the diffraction pattern of the other." Write the equation that expresses that principle.

a. $\theta = 1.22\frac{D}{\lambda}$
b. $\theta = \frac{D}{\lambda}$
c. $\theta = \frac{\lambda}{D}$
d. $\theta = 1.22\frac{\lambda}{D}$

5.

Which statement completes this resolution?
Two images are just resolved when —

a. The center of the diffraction pattern of one image is directly over the central maximum of the diffraction pattern of the other.
b. The center of the diffraction pattern of one image is directly over the central minimum of the diffraction pattern of the other
c. The center of the diffraction pattern of one image is directly over the first minimum of the diffraction pattern of the other

d. The center of the diffraction pattern of one is directly over the first maximum of the diffraction pattern of the other