PHYSICS IN MOTION
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Unit 6H

Light Diffraction & Interference
Practice Problems

Name:

Date:

Work each of the following problems. SHOW ALL WORK.

1. How far from above the center point of the screen will the first mimimum be when red light, with a wavelength of 7.0×10^{-7} m that passes through a single slit that is 2.0×10^{-5} m that is 0.50 m from the screen?

2. The first minimum line is 5.0×10^{-4} m above the center of the screen when blue light, with a wavelength of 4.5×10^{-7} m, is shown upon a single slit that is 4.0×10^{-4} m wide. How far is the screen from the slit?

3. What is the wavelength of light that is shown upon a single slit that is 6.0×10^{-5} m wide and is 1.0×10^{-1} m from a screen on which the third minimum is 2.0×10^{-3} m below the central maximum?

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4. Which minimum is located 0.09 m above the center of the screen that is located 0.6 m from a single slit that is 1.0×10^{-5} m wide for light with a wavelength of 5.0×10^{-7} m?

5. How far above the center point of the screen will the second bright spot be when green light, with a wavelength of 5.0×10^{-7} m that passes through two slits that are 7.5×10^{-5} m apart shines on a screen that is 0.10 m from the slits?

6. The first maximum line is 2.5×10^{-5} m above the center of a screen when orange light, with a wavelength of 6.0×10^{-7} m, is shown upon two slits that are 5.0×10^{-4} m apart. How far is the screen from the slits?

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7. A screen is located 0.30 m from a barrier with two slits. Violet light, with a wavelength of 4.0×10^{-7} m, is shown upon the barrier. If the third maximum is 0.06 m above the center of the screen, how far apart are the two slits from each other?

8. Which maximum is located 0.04 m above the center of the screen that is located 0.34 m from a barrier with two slits that are separated by 2.0×10^{-5} m when yellow light, with a wavelength of 5.8×10^{-7} m?

9. Where will the first minimum be located when green light, with a wavelength of 5.5×10^{-7} m, is shown upon a barrier with two slits separated by 2.5×10^{-5} m upon a screen that is 0.75 m from the barrier?