Work each of the following problems. SHOW ALL WORK.

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

2. The first minimum line is $5.0 \times 10^{-4}$ m above the center of the screen when blue light, with a wavelength of $4.5 \times 10^{-7}$ m, is shown upon a single slit that is $4.0 \times 10^{-4}$ 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 $6.0 \times 10^{-5}$ m wide and is $1.0 \times 10^{-1}$ m from a screen on which the third minimum is $2.0 \times 10^{-3}$ m below the central maximum?
Work each of the following problems. SHOW ALL WORK.

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 $1.0 \times 10^{-5}$ m wide for light with a wavelength of $5.0 \times 10^{-7}$ m?

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

6. The first maximum line is $2.5 \times 10^{-5}$ m above the center of a screen when orange light, with a wavelength of $6.0 \times 10^{-7}$ m, is shown upon two slits that are $5.0 \times 10^{-4}$ m apart. How far is the screen from the slits?
7. A screen is located 0.30 m from a barrier with two slits. Violet light, with a wavelength of $4.0 \times 10^{-7}$ 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 $2.0 \times 10^{-5}$ m when yellow light, with a wavelength of $5.8 \times 10^{-7}$ m?

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