Physics 41 Chapter 37 Lecture Problems

Red light ($\lambda = 664$nm) is used in Young’s double slit as shown. Find the distance $y$ on the screen between the central bright fringe and the third order bright fringe.

A double-slit interference pattern is observed on a screen 1.0 m behind two slits spaced 0.30 mm apart. 9 bright fringes span a distance of 1.7 cm. What is the wavelength of light?

The image shows the light intensity on a screen behind a double slit. The slit spacing is 0.20 mm and the wavelength of light is 600 nm. What is the distance from the slits to the screen?

In a double-slit experiment, the distance between the slits is 0.2 mm, and the distance to the screen is 150 cm. What wavelength (in nm) is needed to have the intensity at a point 1 mm from the central maximum on the screen be 80% of the maximum intensity?

Two slits are illuminated with green light ($\lambda = 540$ nm). The slits are 0.05 mm apart and the distance to the screen is 1.5 m. At what distance (in mm) from the central maximum on the screen is the average intensity 50% of the intensity of the central maximum?