

Name: _____ Date: _____

WAVE OPTICS: DOUBLE SLIT WS 4

1. At what angle is the first-order maximum for 450-nm wavelength blue light falling on double slits separated by 0.0500 mm?
2. What is the separation between two slits for which 610-nm orange light has its first maximum at an angle of 30.0° ?
3. In a double slit experiment with monochromatic light, the separation between the slits is 2 mm. If the screen is moved by 100 mm toward the slits, the distance between the central bright line and the second bright line changes by $32 \mu\text{m}$. Calculate the wavelength of the light used for the experiment.
4. In a Young's double-slit experiment, the slit separation is doubled. To maintain the same fringe spacing on the screen, what must be the screen-to-slit distance D ?
5. In Young's double slit experiment, the second order bright band of one light source overlaps the third order band of another light source. If the first light source has a wavelength of 660 nm, what is the wavelength of the second light source?

