PH 203H/213H
S09 Homework – due Monday June 1, 2009

1. The distance between the first and fifth minima of a single-slit diffraction pattern is 0.35 mm with the screen 40 cm from the slit using light of wavelength 550 nm. (a) What is the slit width? (b) What is the angle that locates the first diffraction minimum?
Answers: (a) 2.5 mm (b) 0.00022 rad

2. What is the separation of two points on the Moon's surface that can just be resolved by the 5.1-m diameter telescope on Mount Palomar in California? Assume that diffraction effects alone limit the resolution. The Moon is 380,000 km from Earth. Use an average wavelength of 550 nm for light.
Answer: 50 m