Homework Set 34 Extra Credit

PH 113 – 10

P1. Monochromatic light of wavelength *λ* = 620 nm from a distant source passes through a slit 0.450 mm wide. The diffraction pattern is observed on a screen 3.00 m from the slit. In terms of the intensity *I*0 at the peak of the central maximum, what is the intensity of the light at the screen at the following distances from the center of the central maximum: (A) 1.00 mm; (B) 3.00 mm; (C) 5.00 mm?

P2. Monochromatic light of wavelength 486 nm from a distant source passes through a slit that is 0.0290 mm wide. In the resulting diffraction pattern, the intensity at the center of the central maximum (*θ* = 0°) is 4.00×10−5 W/m2. What is the intensity at a point on the screen that corresponds to *θ* = 1.20°?