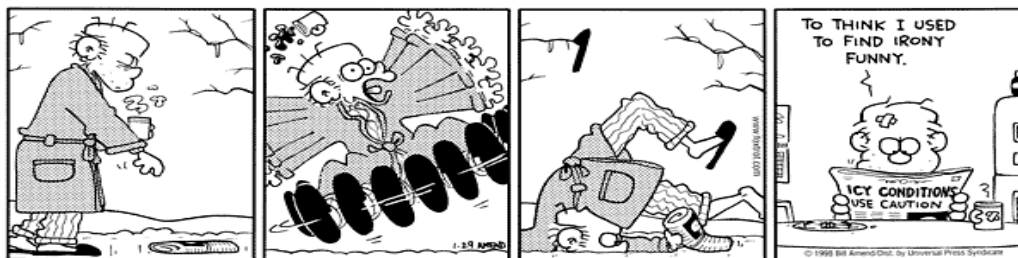# AP Diffraction Problems

Name: _____

"There are two ways to live your life. One is as though nothing is a miracle. The other is as though everything is a miracle." Albert Einstein

1. An interference pattern is formed on a screen when light of wavelength 550 nm is incident on 2 parallel slits 5×10^{-5} m apart. At what angle will the 2nd bright fringe be seen?

2. In a double slit experiment using one color light, a screen is placed 1.25 m away from the slits that are separated by 0.025mm. The third bright fringe is 6.6 cm from the center of the 0th order maximum. What is the wavelength of light?

3. Monochromatic light shines on two parallel slits that are 1 mm apart. If the wavelength of light is 640 nm and the distance from the slits to the screen is 3 m, then what is the separation between the adjacent interference maxima?

4. Monochromatic light illuminates a single slit that has a width of 0.5 mm. If the wavelength of light is 680 nm and the distance from the slits to the screen is 1.8 m, then (a) what is the angle between the second dark fringe and the central maximum and (b) What is the distance from the central maximum to the second dark fringe?