**QUESTIONS TO HAND IN – EXPERIMENT 15**

**NAME\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**LAB INSTRUCTOR\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_LAB DAY/TIME\_\_\_\_\_\_\_\_\_\_ \_ \_\_**

**1.** The diffraction relation (eqn. 1) predicts the thinner the diffracting object, the (circle one) **narrower/wider** is the central diffraction peak.

**2.** Name some instances when you have observed diffraction outside of the laboratory setting.

**3.** Horsehair is much thicker than human hair. Do you expect the diffraction peak for a strand of horsehair to be wider or narrower than that from a human hair?

**4.** The central peak in a diffraction pattern is much more intense than the next order maxima. Use the plot in Fig. 15-1 to estimate the ratio of intensities.

**5.** How thin would your hair have to be in order for the central diffraction maximum to span ±45° on either side of the centerline? Assume red laser light with *l* = 650 nm.