The purpose of this lab is to use a Fizeau interferometer and a spherometer to measure the radius of curvature of curved surfaces.

**Procedure:**

- Use the spherometer to measure the radius of curvature of the concave and convex surfaces provided.

- Use the Fizeau interferometer to measure the radius of curvature of the concave and convex surfaces provided. Measure both sides of the samples. Determine how spherical or flat the surfaces are.

**Questions:**

1) Estimate the accuracy of the measurements provided by the spherometer.

2) What limits the accuracy of the measurements made by the spherometer?

3) How would you change the spherometer to improve the accuracy?

4) Estimate the accuracy of the measurements provided by the Fizeau interferometer.

5) What determines the minimum and maximum radius of curvature that can be measured with the two instruments?

6) How would you increase the range of curvatures that could be measured with the two instruments?

7) Without using a filtered source (i.e. just conventional room lighting), can one observe any fringes between the test surfaces? Why is it difficult to observe fringes under these conditions?

8) At what value of radius would it be more accurate to count fringes vs. using the spherometer to measure radius of curvature?

9) How sensitive is the “radius measurement by counting fringes method” to temperature?
10) Why is it advantageous to utilize a short coherence length source in the Fizeau Interferometer? Is the Fizeau a two-beam or multiple beam interferometer?

11) Is it easier or more difficult to test the coated surfaces? Why?