Physics 325 Homework

1. An equi-convex lens has an index of 1.80, radii of 4.0 cm and a thickness of 3.6 cm. Determine (a) the focal length of the lens, (b) the power of the lens, (c) the location of the principal planes of the lens, and (d) the distance from the vertices of the lens to the focal points and the principal planes of the lens.

2. A glass lens with radii +5.0 cm and 2.5 cm has a thickness of 3.0 cm and an index of 1.50. Calculate the focal length and the location of the principal planes of the lens. What is the power of the lens?

3. The radius of a converging spherical mirror is 30.0 cm. An object 4.0 cm high is placed in front of the mirror at distances of 60 cm, 30 cm, 15 cm, and 10 cm. Find the location of the image for each object distance.

4. A thin equiconvex lens (index 1.60 and radii 12.0 cm) is silvered on one side. For light entering on the unsilvered side what is the focal length and power of the combination lens mirror?