Reflection and Refraction I

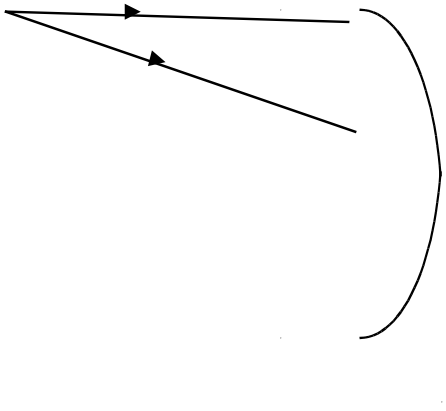
1. Draw a diagram to show why a surface needs to be smooth in order to see an image in another object. (Why can't you see a sharp reflection in the classroom tables?)

2. Explain (draw a ray diagram) why objects appear to be horizontally reversed in a mirror.

3. Draw a ray diagram to show why objects are **not** vertically reversed in a mirror.

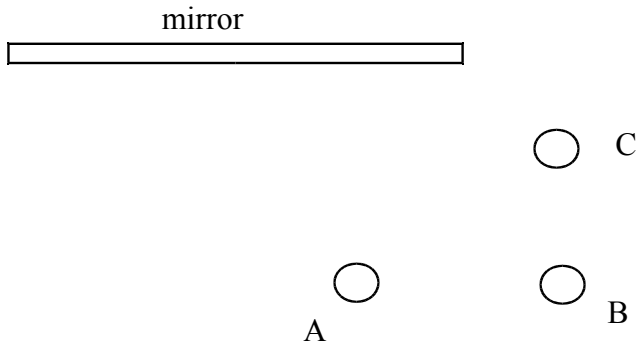
4. Draw a ray diagram to explain why you don't see more of yourself in a mirror by increasing the distance from the mirror. Find the minimum height for a full length mirror for a person who is 6 feet tall.

5. Two rays of light are incident on a curved mirror. Continue the paths of the light.



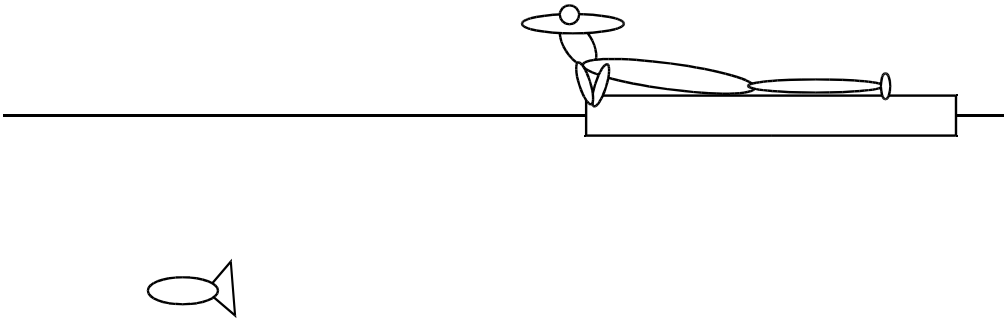
6. Three people, Allen, Bernie and Carl are sitting in chairs that are close to a flat mirror as shown below.

a. In what order, (left to right) would Allen see the following: his own image, Bernie's image, Carl's image, Carl? If there is anything on the list that Allen cannot see, specifically identify it.



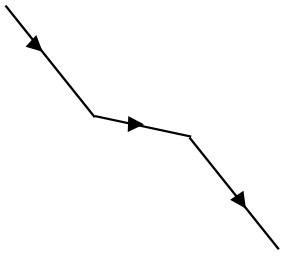
b. In what order, (left to right) would Bernie see the following: his own image, Allen's image, Carl's image, Carl? If there is anything on the list that Bernie cannot see, specifically identify it.

7. Debbie is relaxing on a raft in a lake when she spots a fish in the water. Draw the path the light took to reach her eyes. Also identify the fish's apparent location.



8. Suppose that you have a piece of polished plexiglass. Sketch the orientation of the plexiglass that would produce each of the following paths.

a.



b.