

(1) A plane mirror has an object in front of it at a distance of 10 cm. Characterize the image. Then, what is the shortest mirror that will allow you to see your entire height?

(2) A convex mirror has a radius of curvature of 10 cm. An object is placed at 20 cm from the mirror. Characterize the image.

(3) A concave mirror has a radius of curvature of 10 cm. An object is placed at 20 cm from the mirror. Characterize the image.

(4) A concave mirror has a radius of curvature of 10 cm. An object is placed at 5 cm from the mirror. Characterize the image. Then if the object is placed at 2 cm from the mirror, characterize the image. Suppose the object is 1.5 cm high ... how high is the image?

(5) Light shines on a glass slab at an angle of  $65^\circ$ . If it is observed that the reflected light is completely polarized, then what is the index of refraction of the glass? What is the smallest that Brewster's angle can be?