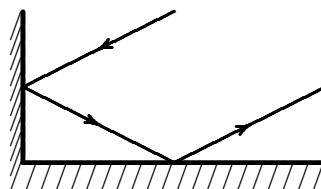


Problems

Chapter 12

1. The figure below shows two flat reflecting surfaces placed at an angle to each other. A ray of light reflects off the first and then the second surface. It is found that the final reflected ray is parallel to the initial ray. Show that the reflecting surfaces are perpendicular to each other.



2. A light ray travelling in air is incident on a flat glass surface. The angle of incidence is measured to be 35.0° . The angle of refraction in the glass is measured to be 22.0° . Find the index of refraction of the glass.
3. The figure below shows a right-angled glass prism surrounded by a liquid. A ray of light is shown to be incident normally on the left face. If the refractive index of the liquid can be changed by changing the amount of a dissolved material, find the highest refractive index of the liquid for which there will be total internal reflection at the diagonal face of the prism. The angle $\phi = 30.0^\circ$ and the refractive index of the glass is 1.52.

