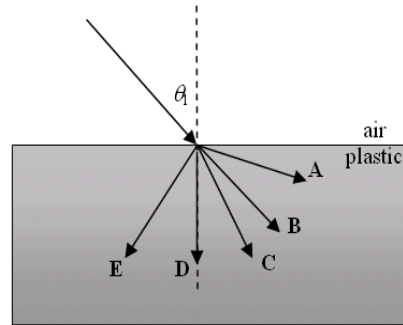
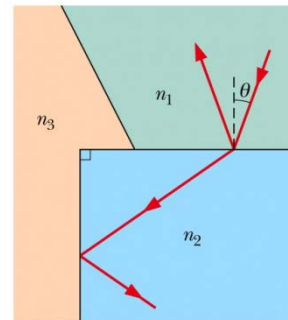


## Ch. 25 Worksheet

1. A ray of light travels through air toward a glass block with an index of refraction  $n = 1.5$  at an angle  $\theta_1$  as shown. Which of the rays shown is the most likely for the refracted ray? Justify your answer.



2. In the figure light initially in material 1 refracts into material 2, crosses that material, and is then incident at the critical angle on the interface between materials 2 and 3. The indexes of refraction are  $n_1 = 1.60$ ,  $n_2 = 1.40$ , and  $n_3 = 1.20$ . What is the angle  $\theta$ ?



3. A concave shaving mirror has a radius of curvature of 35.0 cm. It is positioned so that the upright image of a man's face is 2.50 times the size of the face. How far is the mirror from the face?
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
4. A movie camera with a single lens of focal length 75 mm takes a picture of a person standing 27 m away. If the person is 180 cm tall, what is the height of the image on the film?
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
  
5. An object is positioned at a distance of 18 cm from a concave lens which has a focal length of 12 cm. What is the radius of curvature of the mirror, the image distance, and the lateral magnification? Also state if the image is real or virtual and noninverted or inverted.