

Exercises Use the **Mirror Equation** to solve **Exercises 1-6**.

1. A real image forms 25.0 cm in front of a concave mirror, which has a focal length of 20.0 cm. How far is the object from the mirror?
2. An image forms in front of a concave mirror at the same distance from the mirror as the object. Solve for the object or the image distance in terms of the focal length, f .
3. What is the focal length of a concave mirror that forms an image on a screen 40.0 cm away, of an object that is 20.0 cm in front of the mirror?
4. An object is placed 10.0 cm in front of a concave mirror of focal length 15.0 cm. Solve for D_i . Why is the answer negative?
5. What shape of 'trick' mirror would make a thin person look larger? A large person look thinner? A tall person look shorter? A short person look taller?

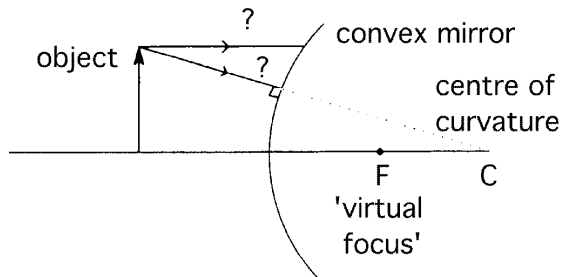


Figure 11.12

6. Draw a diagram similar to **Figure 11.12**. Use two rays to show where the image of the arrow will be. Can a convex mirror form (a) a real image? (b) an enlarged image?

ANS.

1. 100. cm
2. $D = 2f$.
3. 13.3 cm
4. $D_i = -30.0$ cm. The image is virtual, and appears to be behind the mirror.
5. concave, convex, convex, concave
6. (a) No (b) No