Figure 9
The front of an object becomes the back of its image.

This ray-tracing procedure will work for any object placed in front of a flat mirror. By selecting a single point on the object (usually its uppermost tip or edge), you can use ray tracing to locate the same point on the image. The rest of the image can be added once the image point and image distance have been determined.

The image formed by a flat mirror appears reversed to an observer in front of the mirror. You can easily observe this effect by placing a piece of writing in front of a mirror, as shown in **Figure 9.** In the mirror, each of the letters is reversed. You may also notice that the angle the word and its reflection make with respect to the mirror is the same.

SECTION REVIEW

1. Which of the following are examples of specular reflection, and which are examples of diffuse reflection?
   - **a.** reflection of light from the surface of a lake on a calm day
   - **b.** reflection of light from a plastic trash bag
   - **c.** reflection of light from the lens of eyeglasses
   - **d.** reflection of light from a carpet
2. Suppose you are holding a flat mirror and standing at the center of a giant clock face built into the floor. Someone standing at 12 o'clock shines a beam of light toward you, and you want to use the mirror to reflect the beam toward an observer standing at 5 o'clock. What should the angle of incidence be to achieve this? What should the angle of reflection be?
3. Some department-store windows are slanted inward at the bottom. This is to decrease the glare from brightly illuminated buildings across the street, which would make it difficult for shoppers to see the display inside and near the bottom of the window. Sketch a light ray reflecting from such a window to show how this technique works.
4. **Interpreting Graphics** The photograph in **Figure 5** shows multiple images that were created by multiple reflections between two flat mirrors. What conclusion can you make about the relative orientation of the mirrors? Explain your answer.
5. **Critical Thinking** If one wall of a room consists of a large flat mirror, how much larger will the room appear to be? Explain your answer.
6. **Critical Thinking** Why does a flat mirror appear to reverse the person looking into a mirror left to right, but not up and down?