

Plane Mirrors

When you stand in front of a mirror, you see your reflection. The reflected light is organized into a clear image because it follows the **law of reflection**. The law of reflection says the angle of incidence is equal to the angle of reflection. A line perpendicular to a surface is called a normal. An incoming ray of light forms an angle with the normal called the **angle of incidence**. A reflected ray of light forms an angle with the normal called the **angle of reflection**. According to the law of reflection, the two angles are equal.

Not all surfaces are flat and smooth like the surface of a plane mirror. The light that bounces off these surfaces still follows the law of reflection. Rough surfaces scatter the light so parallel rays are no longer parallel. A clear image does not form. This is called **diffuse reflection**. Smooth surfaces reflect light in such a way that parallel rays are still parallel. A clear image does form. This is called regular or **specular reflection**.

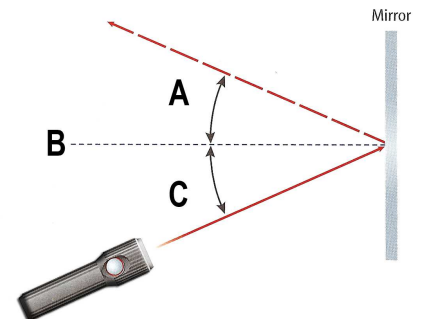
Plane mirrors have a smooth, flat surface. As a result, specular reflection occurs. A clear image forms from the organized reflections that enter your eyes. Your brain assumes that light travels in a straight line without changing direction. This makes the image look as far behind the mirror as the object is in front of the mirror, but left and right switch places.



Answer the questions below based on the reading above and on your knowledge of physics.

1. Refer to the diagram to the right. What do each of the letters represent?

- a. _____
- b. _____
- c. _____



2. How should the angles in the diagram above compare? Explain. _____

3. Why don't you see your reflection in a flat, smooth piece of white paper? _____

4. You stand 75 cm from a mirror. How far back from the surface of the mirror does your reflection appear? _____
