

Name: Key

Notes - 25.1-25.2 Light Rays and Reflection

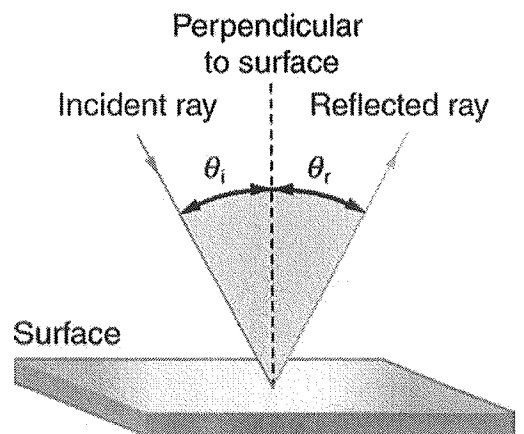
1. Visible light can be thought of as a wave of electromagnetic radiation with wavelengths ranging from 400 nm for violet light to 700 nm for red light.
2. In general, there are three ways in which light can travel from a source to another location.
  - It can come directly from the source through empty space, such as from the Sun to Earth.
  - It can travel through various media, such as air and glass.
  - It can also arrive after being reflected, such as by a mirror.
3. In all of these cases, light is modeled as traveling in straight lines called rays. Light may change direction when it encounters objects, but it then continues in a straight line or as a ray.
4. The part of optics, where the ray aspect of light dominates (as opposed to the particle aspect of light), is called geometric optics.
5. There are two laws that govern how light changes direction when it interacts with matter.
  - The Law of Reflection, for situations where light bounces off matter.
  - The Law of Refraction, for situations where which light passes through matter.

6. Law of Reflection

A. Angle of incidence = angle of reflection.

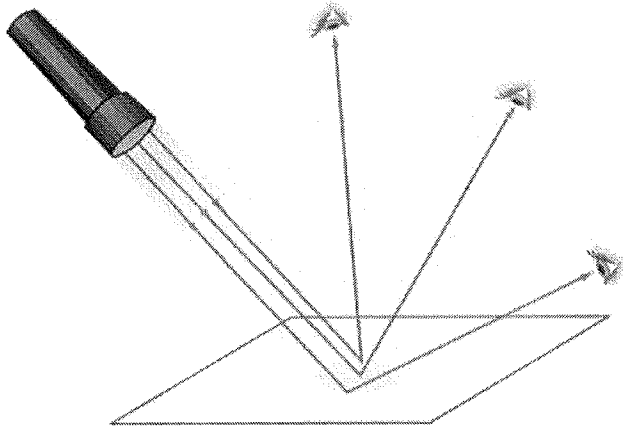
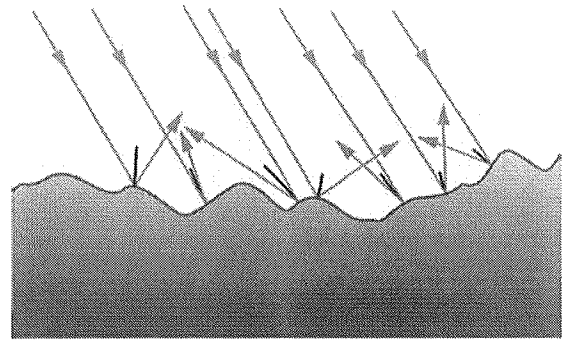
B.  $\theta_i = \theta_r$

C. The angles are always measure from the normal.



## 7. Two General Categories of Reflection

A. Diffuse Reflection: This occurs on a rough surface. At each point, the law of reflection is obeyed, but as a result of the rough surface, light is reflected in many different angles.



B. Specular Reflection: This occurs on a smooth surface, where the roughness is small compared to the wavelength of light.

