

Assignment 8

Optics

1. Consider an object of height 1 cm in front of a convex lens having a focal length of 5 cm. Describe the image size, type and position if the object is at the following positions from the lens.
 - a) 20 cm
 - b) 10 cm
 - c) 5 cm
 - d) 2 cm

2. What are the approximate wavelengths and frequencies of the following photons.
 - a) Red light
 - b) Yellow light
 - c) Blue light
 - d) X ray
 - e) Infrared light
 - f) Ultraviolet light
 - g) Gamma ray

3.
 - a) Explain using diagrams of light entering the eye, what farsightedness is.
 - b) How can glasses correct this problem.

4. A light ray is incident at 45° on a surface. Find the angle of refraction if the reflecting surface is:
 - a) water
 - b) glass

5. Young's Double slit experiment is done using blue light. How does it differ from using red light?