

## Applications of refraction of light-Exercise

1. How is the refractive index of a medium related to the real and apparent depths of an object in that medium?
2. Prove that  
$$\text{Refractive index} = \frac{\text{Real depth}}{\text{Apparent depth}}$$
3. Water in a pond appears to be only three – quarters of its actual depth. What property of light is responsible for this observation? Illustrate your answer with the help of a ray diagram.
4. Draw a ray diagram to show the appearance of a stick partially immersed in water. Explain your answer.
5. What causes the twinkling of stars at night?
6. A fish swimming in a pond seems nearer than it really is. Give reason.
7. During sunset and sunrise the sun is seen even when it is slightly below the horizon. Name the phenomenon responsible for it.
8. Why do stars twinkle, but not the planets?
9. Why do the faces of people sitting around a camp fire appear to shimmer?
10. Why does a fisherman aim his spear at the tail of a fish during spear fishing?
11. Explain the terms real depth and apparent depth.