

HW

1. What are the two conditions required for total internal reflection?

Ans) * A ray of light should be travelling from denser to rarer medium

* Angle of incidence should be greater than critical angle

Q.10 A fish in the pond of water appears at a depth of 6 cm. What is the actual depth of the fish if the refractive index of air w.r.t water is $\frac{3}{4}$?

Ans) we know, that $\mu = \frac{\text{Real depth}}{\text{Apparent depth}}$

$${}^w\mu_a = \frac{3}{4}$$

$${}^a\mu_w = \frac{4}{3}$$

we know, ${}^a\mu_w = \frac{\text{real depth}}{\text{Apparent depth}}$

$$\frac{4}{3} = \frac{\text{real depth}}{6}$$

So, Real depth = $\frac{4}{3} \times 6 = 8 \text{ cm}$

3. A rectangular glass slab of thickness 8 cm is placed on a figure. The eye is kept exactly above this slab. If the refractive index of glass is 1.6 then, by what distance the figure will appear to raise

Ans)

3 cm.