H.W
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Q1, What are the two conditions required for total internal reflection?

Ans The two conditions for total internal reflection are:

* A ray of light travelling from denser to rarer medium is sent back to the same medium
* At the point of incident on the interface the ~~ray~~ at an angle greater than the critical angle.

Q2. 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 $\mu = \frac{\text{Apparent depth}}{\text{real depth}} \Rightarrow \frac{3}{4} = \frac{6}{\text{real depth}}$

$\Rightarrow$ real depth $= \frac{3}{4} \times \frac{1}{6} = \frac{1}{8}$ m.

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 raised?

Ans Real depth = 8 cm.

$\mu = 1.6$

apparent depth $= \frac{8}{1.6}$ cm $= 5$ cm.

Hence the figure will appear to be raised:

normal shift = real depth - apparent depth $= 8 - 5 = 3$ cm.