

X.W  
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1- 2 Important condition for Total internal reflection are -

- light must move from high density to low density.
- Angle of incidence should be greater than critical angle.

$$2) \mu_{wa} = \frac{\text{Real depth}}{\text{App. depth}}$$

$$\Rightarrow \text{Real depth} = \text{App dep} \cdot \mu_{wa} = \text{App. depth} \cdot \frac{1}{\mu_{aw}}$$

$$\Rightarrow RD = \frac{6\text{cm}}{3/4} = \frac{6 \times 4}{3} = \underline{\underline{8\text{cm}}}$$

~~As angle of incidence is 0° so no lateral disp and no vertical disp~~

$$3) \text{Normal shift} = \text{Real depth} - \text{App. depth}$$

$$\Rightarrow \frac{\text{App depth}}{\mu_{ag}} - \text{App. depth}$$

$$= 8 \left( \frac{1.6 - 1}{1.6} \right) = \underline{\underline{3\text{cm}}}$$