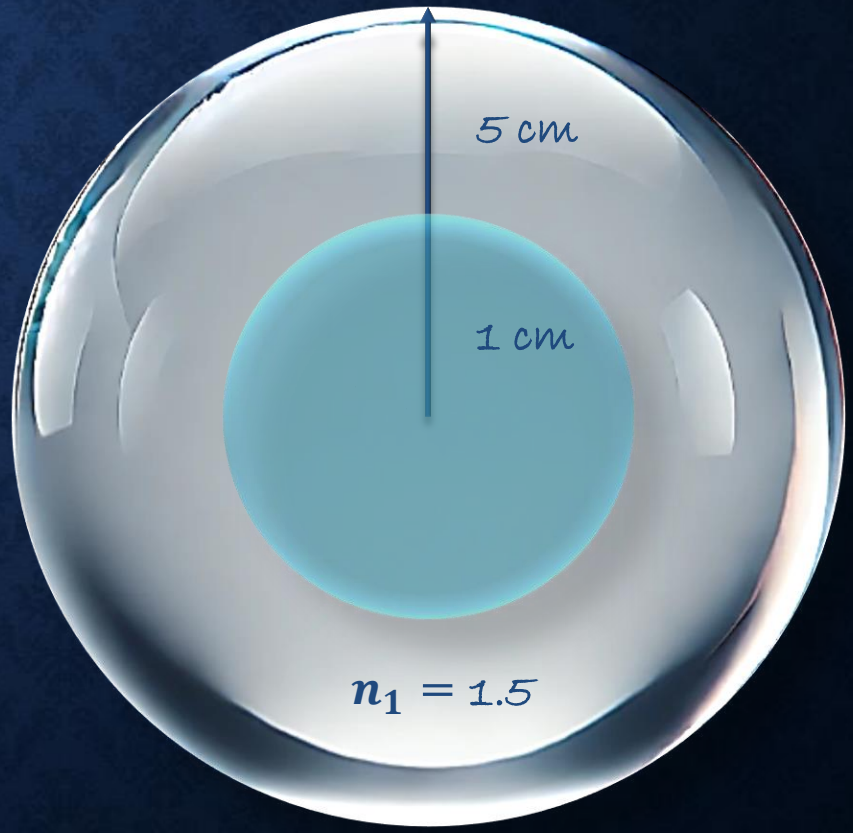
The radius of a glass ball is 5 cm. There is an air bubble at 1 cm from the centre of the ball and refractive index of glass is 1.5. The position of image viewed from surface near the bubble is.

a) 3.63 cm

b) 4.63 cm

c) 2.12 cm

d) 5.12 cm



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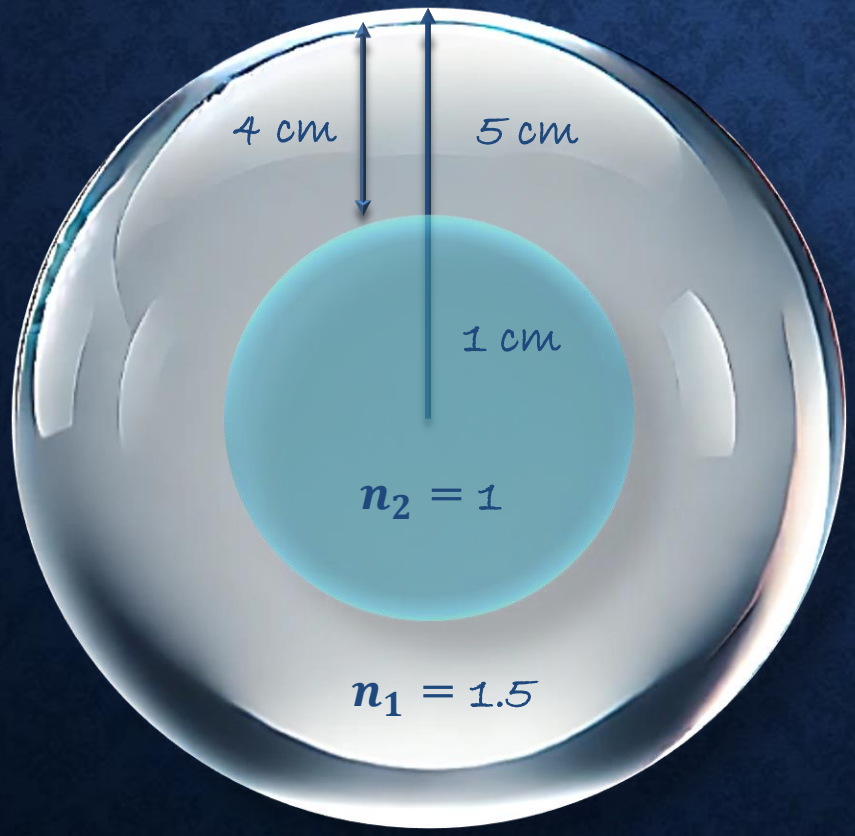


Given:

$R = 5\ cm$

$u = 4\ cm$

$n_2 = 1$

$n_1 = 1.5$

$v = ?$

$$\frac{n_2}{v} - \frac{n_1}{u} = \frac{n_2 - n_1}{R}$$

$$\frac{1}{v} - \frac{1.5}{4} = \frac{-0.5}{5}$$

$$\frac{1}{v} = \frac{1.5}{4} - \frac{0.5}{5}$$

$v = 3.636363$

A small point object is placed at O, at a distance of 0.60 m in air from a convex spherical surface of refractive index 1.5. If the radius of the curvature is 25 cm, then what is the position of the image on the principal axis ?

(a) 4.5 m

(b) 2.5 m

(c) 1.5 m

(d) 5.5 m