

How does a (plano convex) lens look like when viewed from an oblique angle?

$$\frac{L_1}{\sin \theta} = \frac{L}{\cos \theta}$$

$$h^2 + \frac{L^2}{\cos^2 \theta} = R_1^2$$

$$R_1^2 + L^2 = R_1^2$$

$$L_1 \sin \theta + L \cos \theta = \frac{L_1}{\sin \theta}$$

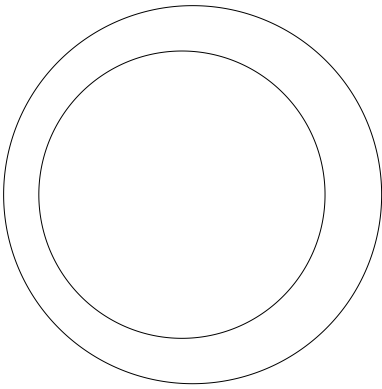
$$L_1 = \left(\frac{1}{\sin \theta} - \sin \theta \right) L$$

$$= L \frac{\sin \theta}{\cos \theta} = L \tan \theta$$

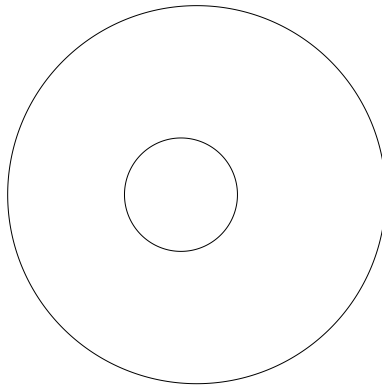
$$R_1^2 - h^2 = L^2 \quad h = \sqrt{R_1^2 - L^2}$$

RICA?

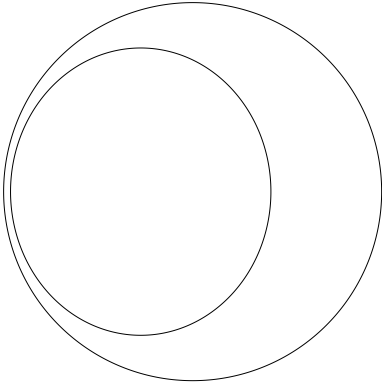
$\theta=85$



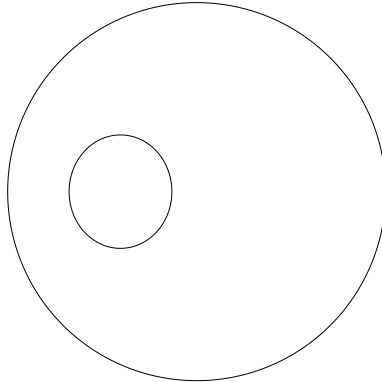
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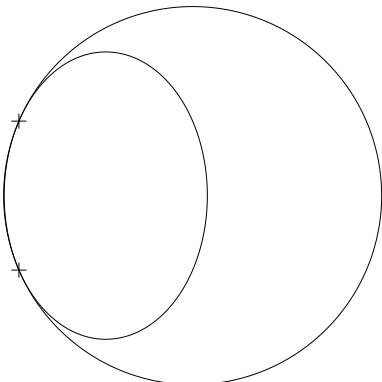
$\theta=65$



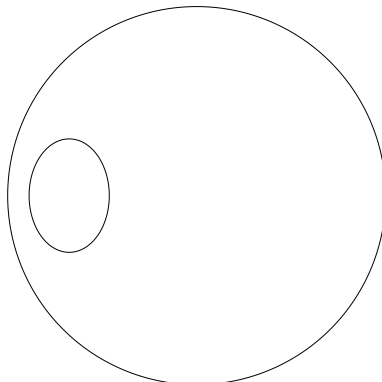
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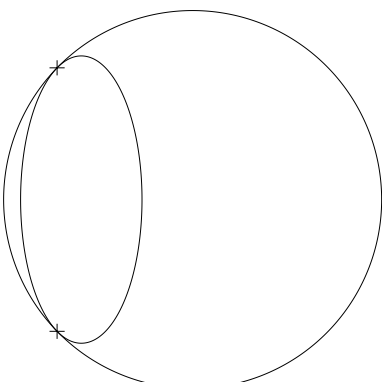
$\theta=45$



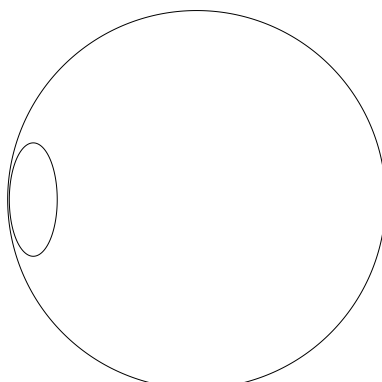
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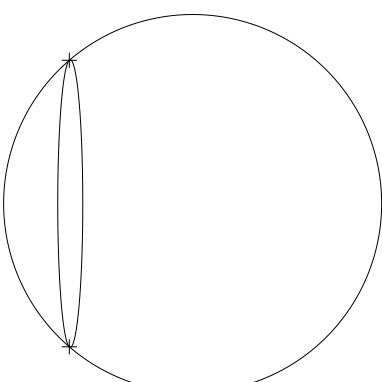
$\theta=25$



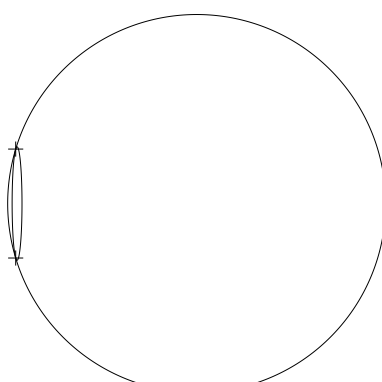
$\theta=25$



$\theta=5$



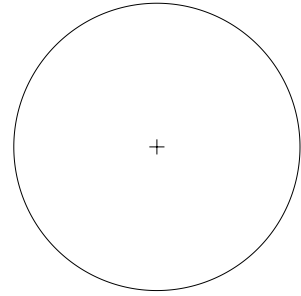
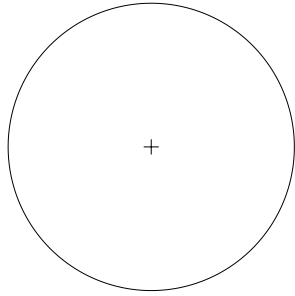
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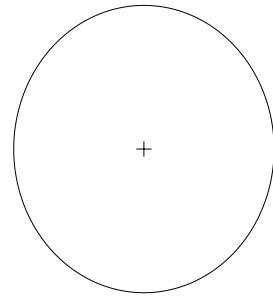
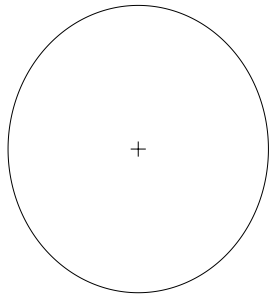
R=45, R1=38

R=100, R1=38

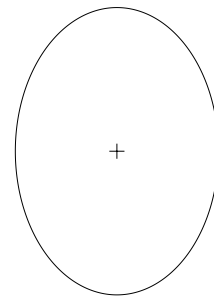
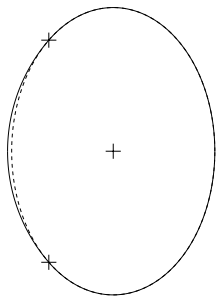
$\theta=85$



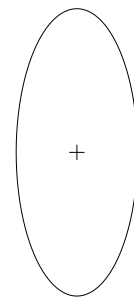
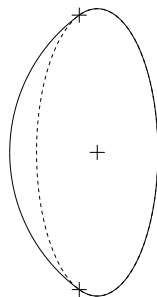
$\theta=65$



$\theta=45$



$\theta=25$



$\theta=5$

