

$$\triangle OO'A: \quad R^2 = h^2 + r^2 \quad (\text{I})$$

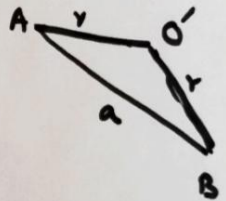
$$\triangle OAB: \quad \text{assumption } OA \perp OB \Rightarrow R^2 + R^2 = a^2 \quad (\text{II})$$

the
in Pentagram

$\triangle ABO'$:

$$\frac{a}{2} = r \sin \frac{\alpha}{2} \quad (\text{III})$$

$$\text{w/ } \frac{\alpha}{2} = \frac{2\pi}{5}$$



inserting III into II

$\& \sim \text{II} \sim \text{I}$

$$h^2 = R^2 - \frac{1}{2} \frac{R^2}{\sin^2 \frac{\alpha}{2}} = R^2 \left(1 - \frac{1}{2 \sin^2 \frac{\alpha}{2}} \right)$$

$$R=1 \quad \uparrow = \frac{1}{\sqrt{5}}$$

$$\Rightarrow \boxed{h = \frac{1}{\sqrt[4]{5}}}$$

□