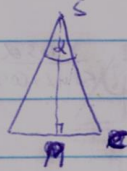
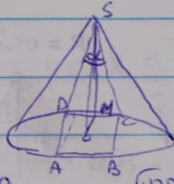


3.84
6



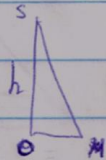
$$2R = \sqrt{2}a$$

$$R = \frac{a}{\sqrt{2}}$$



$$MC = \frac{a}{2}$$

$$SM = MC \cot \frac{\alpha}{2} = \frac{a}{2} \cot \frac{\alpha}{2}$$



$$h = SO = \sqrt{SM^2 - OM^2} = \sqrt{\frac{a^2}{4} \cot^2 \frac{\alpha}{2} - \frac{a^2}{4}}$$

$$= \frac{a}{2} \sqrt{\cot^2 \frac{\alpha}{2} - 1}$$

$$V = \frac{1}{3} \pi r^2 h = \frac{1}{3} \pi \frac{a^2}{2} \cdot \frac{a}{2} \sqrt{\cot^2 \frac{\alpha}{2} - 1} = \frac{a^3 \pi}{12} \sqrt{\cot^2 \frac{\alpha}{2} - 1}$$

$$= \frac{a^3 \pi}{12} \sqrt{\frac{\cos^2 \frac{\alpha}{2} - \sin^2 \frac{\alpha}{2}}{\sin^2 \frac{\alpha}{2}}} = \frac{a^3 \pi}{12 \sin^2 \frac{\alpha}{2}} \sqrt{\cos \alpha}$$