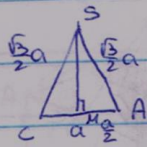


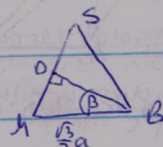
3.50
6

SH 83AK D 108 ASAC D 107 FE (2)

QIAN $\triangle BSH \leftarrow$ SH 8 p1111 PM SH 8 107 BD



$$SH = \sqrt{\frac{3}{4}a^2 - \frac{a^2}{4}} = \frac{a}{\sqrt{2}}$$

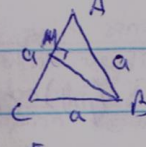


$$DH = \frac{1}{2} SH$$

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

$$\sin \beta = \frac{DH}{HB} = \frac{\frac{a}{2\sqrt{2}}}{\frac{a}{\sqrt{2}}}$$

$$\sin \beta = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$



$$BH = \frac{\sqrt{3}}{2}a$$

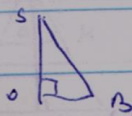
$$SB = HB = \frac{a}{\sqrt{2}}$$

$$SA = SB = SC$$

(2) $S_{ABC} = \frac{\sqrt{3}}{4}a^2$ $S_{CA} = S_{CB} = S_{AB} = \frac{SH \cdot AC}{2} = \frac{\frac{a}{\sqrt{2}} \cdot a}{2} = \frac{a^2}{2\sqrt{2}}$

\rightarrow $S_{ABC} + 3S_{CA} = \frac{\sqrt{3}a^2}{4} + \frac{3a^2}{2\sqrt{2}} = \frac{a^2}{4}(\sqrt{3} + 3\sqrt{2})$

(3) $V = \frac{1}{3} S_{ABC} \cdot S_0 = \frac{1}{3} \cdot \frac{\sqrt{3}a^2}{4} \cdot \frac{\sqrt{5}a}{\sqrt{12}} = \frac{\sqrt{5}a^3}{24}$



$$S_0 = \sqrt{SB^2 - OB^2} = \sqrt{\frac{3}{4}a^2 - \frac{1}{3}a^2} = \frac{\sqrt{5}}{12}a$$