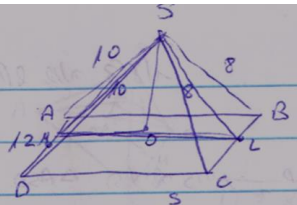
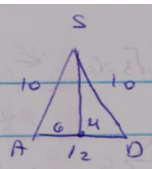
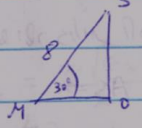
4.7 (k)





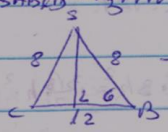
$\rightarrow SM = 8$



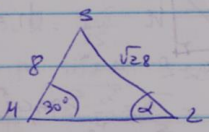
$SO = 8 \sin 30 = 4$

$MO = 8 \cos 30 = 4\sqrt{3}$

$V_{SABCD} = \frac{1}{3} \cdot$



$\rightarrow SL = \sqrt{28}$



$$\frac{8}{\sin\alpha} = \frac{\sqrt{28}}{\sin 30}$$

$\cos\alpha = \sqrt{\frac{3}{7}} \leftarrow \sin\alpha = \frac{4}{\sqrt{28}} = \sqrt{\frac{4}{7}}$

$\sin \angle MSL = \sin(150 - \alpha) = \sin 150 \cos\alpha - \cos 150 \sin\alpha = \frac{1}{2} \cdot \sqrt{\frac{3}{7}} + \frac{\sqrt{3}}{2} \cdot \sqrt{\frac{4}{7}} = \frac{3\sqrt{3}}{2\sqrt{7}}$

$$\frac{LM}{\sin \angle MSL} = \frac{\sqrt{28}}{\sin 30^\circ} \rightarrow LM = \frac{\frac{3\sqrt{3}}{2\sqrt{7}} \cdot \sqrt{28}}{\frac{1}{2}} = 6\sqrt{3}$$

$V_{SABCD} = \frac{1}{3} \cdot AB \cdot AD \cdot SO = \frac{1}{3} \cdot 6\sqrt{3} \cdot 12 \cdot 4 = 96\sqrt{3}$

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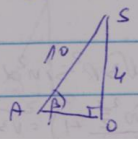

$\sin\beta = \frac{4}{10} = 0.4$