

b) $\triangle AMB$ is semi-equilateral at M (proved)

$\angle AM$ is smallest side

$$\text{So, } \hat{A}BM = 30^\circ$$

$MROS$ is a rectangle (proved)

$$\text{So, } \hat{OSB} = 90^\circ$$

Then right $\triangle OSB$:

$$\text{Use } \cos \hat{OBS} = \frac{\text{adj to } \hat{B}}{\text{hyp}}$$

$$\cos(\hat{OBS}) = \frac{SB}{OB}$$

$$\begin{aligned} \text{hence, } SB &= OB \times \cos \hat{OBS} \\ &= 2 \times \cos 30^\circ \\ &= \frac{2\sqrt{3}}{2} \end{aligned}$$

$$\text{Thus, } SB = \sqrt{3} \text{ cm}$$

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