367
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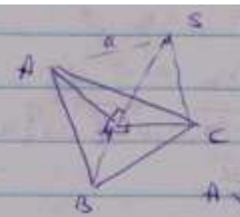
(א)

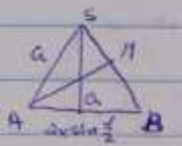


AM ו- MC הם גבהים ב- ΔSAB ו- ΔSBC

המשולשים הנ"ל חופפים לכן הגבהים שווים.

$MC = x\sin\frac{\alpha}{2}$

$AC = 2x\sin\frac{\alpha}{2}$



$S_{ASB} = \frac{AM\cdot SB}{2} = \frac{SQ\cdot AB}{2} \rightarrow SQ = \frac{AM\cdot SB}{AB}$

$SQ = \frac{x\cdot a}{2x\sin\frac{\alpha}{2}} = \frac{a}{2\sin\frac{\alpha}{2}}$

$AQ = \sqrt{SA^2 - SQ^2} = \sqrt{a^2 - \frac{a^2}{4\sin^2\frac{\alpha}{2}}} = \frac{a}{2\sin\frac{\alpha}{2}}\sqrt{4\sin^2\frac{\alpha}{2}-1}$

$AB = 2AQ = \frac{a}{\sin\frac{\alpha}{2}}\sqrt{4\sin^2\frac{\alpha}{2}-1}$

(ב) נדרש $4\sin^2\frac{\alpha}{2}-1>0$ ← $\sin^2\frac{\alpha}{2}>\frac{1}{4}$ ← $\sin\frac{\alpha}{2}>\frac{1}{2}$ ← $60<\alpha<180$