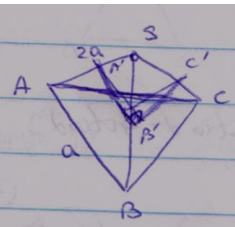
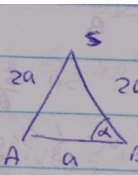
4.27
6





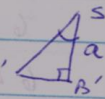
א.

$4a^2 = 4a^2 + a^2 - 4a^2\cos\alpha \rightarrow \cos\alpha = \frac{1}{4} \rightarrow \sin\alpha = \frac{\sqrt{15}}{4}$

$\angle A'SB' = \angle ASB = 180 - 2\alpha$

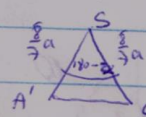
$\cos(180-2\alpha) = -\cos 2\alpha = -(2\cos^2\alpha - 1) = 1 - 2\cdot\frac{1}{16} = \frac{7}{8}$

ב.



$SA' = \frac{SB'}{\cos\angle A'SB'} = \frac{a}{\frac{7}{8}} = \frac{8}{7}a \rightarrow A'B' = \sqrt{A'S^2 - B'S^2} = \sqrt{\frac{64}{49}a^2 - a^2} = \frac{\sqrt{15}}{7}a$

ג.



$B'C' = \frac{\sqrt{15}}{7}a$, $SC' = \frac{8}{7}a$ (נתון)

$(S.A.S)\ \triangle SA'B' \cong \triangle SC'B'$

$A'C'^2 = \frac{64}{49}a^2 + \frac{64a^2}{49} - 2\cdot\frac{64}{49}a^2\cdot\frac{7}{8} \rightarrow A'C' = \frac{4a}{7}$