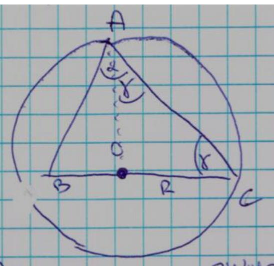
2.63
6



ΔAOC שו"ש $(R = AO = OC)$

:ΔABO

(תוצאות ל ΔAOC) $\measuredangle BAO = \alpha - \gamma$

$\measuredangle BOA = 2\gamma$

$\measuredangle ABOA = 180 - \gamma - \alpha$

משפט הסינוסים:
ΔAOB

$$\frac{BO}{\sin(\alpha-\gamma)} = \frac{AO}{\sin(180-\gamma-\alpha)}$$

$$BO = \frac{R\sin(\alpha-\gamma)}{\sin(\alpha+\gamma)}$$

משפט הסינוסים
:ΔAOC

$$\frac{R}{\sin\gamma} = \frac{AC}{\sin(180-2\gamma)}$$

$$\boxed{AC = 2R\cos\gamma}$$

$$S_{ABC} = \frac{AC\cdot BC\cdot \sin\gamma}{2} = \frac{2R\cos\gamma\cdot\left(\frac{R\sin(\alpha-\gamma)}{\sin(\alpha+\gamma)} + R\right)\sin\gamma}{2} =$$

$$= \frac{1}{2}R^2\sin 2\gamma\left[\frac{\sin(\alpha-\gamma)+\sin(\alpha+\gamma)}{\sin(\alpha+\gamma)}\right] = \frac{\frac{1}{\cancel{2}} R^2\sin 2\gamma}{\sin(\alpha+\gamma)}\cdot \cancel{2}\sin\alpha\cdot\cos\gamma =$$

$$\boxed{S = \frac{R^2\sin 2\gamma\sin\alpha\cos\gamma}{\sin(\alpha+\gamma)}}$$