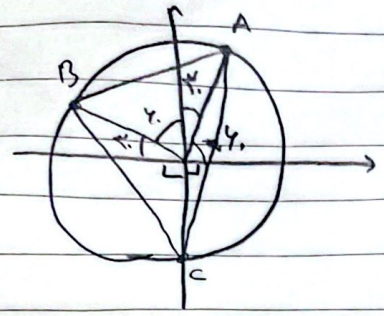
۳-



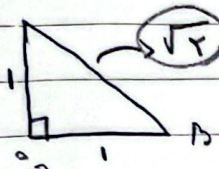

$S_{AOC} = \frac{1}{2}ab\sin\alpha = \frac{1}{2}\times 1\times\frac{1}{2} = \frac{1}{4}$

$S_{ABO} = \frac{1}{2}ab\sin\alpha = \frac{1}{2}\times 1\times\frac{1}{2} = \frac{1}{4}$

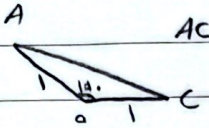
$S_{BOC} = \frac{1}{2}ab\sin\alpha = \frac{1}{2}\times\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{2} = \frac{1}{4}$

$\Rightarrow S_{\text{کل}} = \frac{3+\sqrt{3}}{4}$ جواب الف

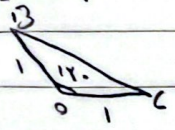
ب)




$\Rightarrow AB = \sqrt{2}$




$AC = \sqrt{1^2+1^2-2\times1\times1\times\cos 120^\circ} = \sqrt{2+\sqrt{3}}$




$BC = \sqrt{2-2\cos 120^\circ} = \sqrt{3}$ ($-2\times-\frac{1}{2}$)

$\Rightarrow P_{ABC} = \sqrt{2}+\sqrt{2+\sqrt{3}}+\sqrt{3}$

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$AC = \log_{\sqrt{3}}^{16} = \log_3^{4^4} = 4\log_3^4 \xrightarrow{\log_a^b = \frac{1}{\log_b^a}} 4\log_4^3 \xrightarrow{\log_a^b = n} 4n$

$BC = \log_{\sqrt{2}}^{\sqrt{8}} = \log_2^{2^3} = 3\log_2^2 = \frac{3}{\log_2^2} \xrightarrow{\log_a^b = n} \frac{3}{n}$

$\Rightarrow S_{\text{مثلث}} = \frac{1}{2}ab\sin\alpha = \frac{1}{2}\times 4n\times\frac{3}{n}\times\sin 30^\circ = 3$ ← جواب

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ب-

$\cos\alpha = n \longrightarrow 2\cos^4\alpha - \cos^2\alpha - 2\sin^4\alpha + \sin^2\alpha \rightarrow 2(\cos^4\alpha - \sin^4\alpha) - (\cos^2\alpha - \sin^2\alpha) = 2\cos 2\alpha - \cos 2\alpha$

$= \cos 2\alpha = 1 \Rightarrow \sin 2\alpha = 0$

$\sin^2+\cos^2=1$

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$\frac{2\pi}{|b|} = \pi \Rightarrow b = \pm 2$ → غیرقابل‌قبول $a = -3$

$c = -1$

$\Rightarrow y = -2\cos 2\alpha - 1 = 0 \rightarrow -2\cos 2\alpha = 1 \Rightarrow \cos 2\alpha = -\frac{1}{3} \Rightarrow \sin 2\alpha = \frac{2\sqrt{2}}{3}$

سمت چپ جواب

$\Rightarrow |\tan 4\alpha| = \left|\frac{\sin 2\alpha}{\cos 2\alpha}\right| = \left|\frac{\frac{2\sqrt{2}}{3}}{-\frac{1}{3}}\right| = |-2\sqrt{2}| = 2\sqrt{2}$

$\frac{1}{9}$ $\frac{8}{9}$