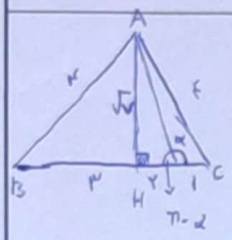
۲۰

نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۲۷ کلاس .....

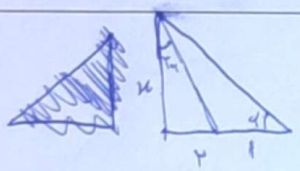
$\frac{1}{2}\times 4\times\sqrt{3}\times\sin\alpha = 6/\Omega \to \sin\alpha = \frac{9}{4\sqrt{3}} = \frac{\sqrt{3}}{2} \to \sin\alpha = \frac{\sqrt{3}}{2}$ $\begin{cases}\alpha = \frac{\pi}{3}\\ \alpha = \frac{2\pi}{3}\end{cases} \Rightarrow \frac{\alpha_{max}}{\alpha_{min}} = \frac{\frac{2\pi}{3}}{\frac{\pi}{3}} = 2$ ✓

۱ — ۲



$\tan(\pi-\alpha) = \frac{\sqrt{7}}{2} \Rightarrow -\tan\alpha = \frac{\sqrt{7}}{2} \Rightarrow \tan\alpha = -\frac{\sqrt{7}}{2}$ ✓

۲ — ۴

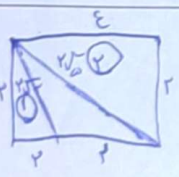


$\tan 2\alpha = \frac{2}{3} \to \tan\alpha = \frac{1}{3}$

$\to \tan 4\alpha = \frac{2}{3} = \frac{2\tan\alpha}{1-\tan^2\alpha} \to \frac{2}{3} = \frac{\frac{2}{3}}{1-\frac{1}{9}} \to$

$18k^2 = 36 - 2k^2 \to 20k^2 = 36 \to k = \frac{6}{2} \to \cot\alpha = \frac{\frac{3}{1}}{\frac{6}{2}} = 2$ ✓

۳ — ۲



$\delta_1 = 2$, $\delta_2 = 4$, $\delta_3 = 8$

$\to \delta_{\text{برآیند}} = 2 \to \frac{1}{2}\times 2\sqrt{2}\times 2\sqrt{5}\times\sin\alpha = 2 \to \sin\alpha = \frac{\sqrt{10}}{10}$

$\to \cot\alpha = \frac{3\sqrt{10}}{\sqrt{10}} = 3$ ✓

۴ — ۲

$2\sin^2\alpha + \cos^2\alpha = \frac{6}{5} \xrightarrow{\div\cos^2\alpha} 2\tan^2\alpha + 1 = \frac{6}{5}\cdot\frac{1}{\cos^2\alpha} \to 2\tan^2\alpha + 1 = \frac{6}{5}(1+\tan^2\alpha) \xrightarrow{\times 5} 10\tan^2\alpha + 5 = 6 + 6\tan^2\alpha$

$4\tan^2\alpha = 1 \to \tan^2\alpha = \frac{1}{4}$ ✓

۵ — ۲

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۶ (۲)

$\sin^4 = (1-\cos^2)^2 = \cos^4 - 2\cos^2 + 1$

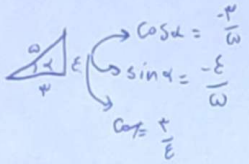
$\cos^4 = (1-\sin^2)^2 = \sin^4 - 2\sin^2 + 1$

$\Rightarrow \frac{(\cos^2\alpha+1)}{\cos^2\alpha+1} - \frac{(\sin^2\alpha+1)^2}{\sin^2\alpha+1} = \cos^2\alpha - \sin^2\alpha = \cos 2\alpha$ ✓

$\frac{\cos^4 + 2\cos^2 + 1}{\cos^2+1} - \frac{\sin^4 + 2\sin^2 + 1}{\sin^2+1}$

۷ (۲)

$\rightarrow \sin\left(\frac{\pi}{2}+\alpha\right)\cos\left(\frac{3\pi}{2}-\alpha\right) + \tan\left(\frac{3\pi}{2}-\alpha\right) \rightarrow \cos(-\sin) + \cot(\alpha) \rightarrow \frac{-3}{5}\times\frac{4}{5} + \frac{3}{4} = \frac{27}{100} = 0.27$ ✓

$\tan\alpha = \frac{4}{3} \rightarrow$ 

۸ (۲)

$3\cos 4\alpha + \sqrt{2}(\sin - \cos) \rightarrow 3\cos 4\alpha + \sqrt{2}\left(\sqrt{2}\sin\left(\alpha - \frac{\pi}{4}\right)\right) \rightarrow 3\cos\frac{\pi}{3} + 2\sin\left(-\frac{\pi}{4}\right) \rightarrow \frac{3}{2} - 1 \rightarrow \frac{1}{2}$ ✓

($\cos\frac{\pi}{3} = \frac{1}{2}$, $\sin\left(-\frac{\pi}{4}\right) = \frac{-1}{2}$)

۹ (۲)

$\tan\alpha = \frac{2\tan\frac{\alpha}{2}}{1-\tan^2\frac{\alpha}{2}} = \frac{8}{15} \rightarrow 1+\tan^2 = \frac{1}{\cos^2} \rightarrow 1 + \frac{64}{225} \rightarrow \cos\alpha = \frac{15}{17} \rightarrow \sin = \frac{8}{17}$

$\rightarrow \frac{\frac{8}{15} - \frac{8}{17}}{\frac{8}{17} - \frac{15}{17}} = \frac{-16}{15}$ ✓

۱۰ (۲)

$\frac{\cot\alpha}{\sin\alpha} > 0 \rightarrow \frac{\cos\alpha}{\sin^2\alpha} > 0 \rightarrow \cos\alpha > 0$

$\Rightarrow$ ربع اول

$2\sin\alpha < \sin 2\alpha \Rightarrow 2\sin\alpha < 2\sin\cos\alpha \Rightarrow 2\sin\alpha(1-\cos\alpha) < 0 \rightarrow \sin\alpha < 0$

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