نام و نام خانوادگی ......حسنی‌پور...... پاسخنامه تشریحی تکلیف شماره ..۲۷.. کلاس ..یازدهم دختر A......

۱

$S = \sqrt{3} \times 6 \times \sin\alpha \times \frac{1}{2} = 4/5 \rightarrow \sin\alpha = \frac{3}{2\sqrt{3}} \xrightarrow{\text{گویا کردن}} \frac{\sqrt{3}}{2} = \sin\alpha$ → $60°$ ، $120°$

$\frac{\alpha_{max}}{\alpha_{min}} = \frac{120}{60} = \boxed{2}$

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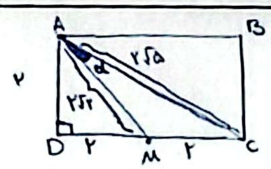

$S_{ADC} = 4$

$S_{ADM} = 2$ $\rightarrow S_{AMC} = \underset{4}{S_{ADC}} - \underset{2}{S_{ADM}} = 2$

$2 = 2\sqrt{5} \times 2\sqrt{2} \times \frac{1}{2} \sin\alpha \rightarrow \sin\alpha = \frac{\sqrt{10}}{10} \xrightarrow{\sin^2+\cos^2=1} \cos\alpha = \frac{3}{\sqrt{10}}$

$\cot = \frac{\frac{3}{\sqrt{10}}}{\frac{\sqrt{10}}{10}} = \boxed{3}$

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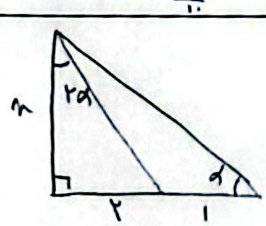


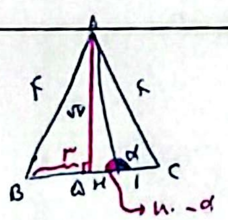
$\cot\alpha = \frac{3}{x}$, $\tan\alpha = \frac{x}{3}$

$\cot 2\alpha = \frac{x}{2}$, $\frac{\cot\alpha - \tan\alpha}{2} = \cot 2\alpha \rightarrow \frac{x}{2}$

$\frac{3}{x} - \frac{x}{3} = x \rightarrow \frac{9 - x^2}{3x} = x \rightarrow 9 - x^2 = 3x^2$

$9 = 4x^2 \rightarrow x = \frac{3}{2} \rightarrow \cot\alpha = \frac{3}{\frac{3}{2}} = \boxed{2}$

۴



$\tan\alpha = \tan(180 - \alpha) = \frac{\sqrt{7}}{3} \rightarrow$ در ربع ۲ $\tan$ منفی $\rightarrow \boxed{-\frac{\sqrt{7}}{3}}$

AH عمود منصف ، $H_1 = H_2 = 90 \rightarrow 9 + h^2 = 16 \rightarrow h = \sqrt{7}$

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$2\sin^2 x + \cos^2 x = \frac{4}{3} \rightarrow \sin^2 x + 1 = \frac{4}{3} \rightarrow \sin^2 x = \frac{1}{3}$

$\sin^2 x + \cos^2 x = 1 \xrightarrow{\sin^2 x = \frac{1}{3}} \cos^2 x = \frac{2}{3}$

$\tan^2 x = \frac{\frac{1}{3}}{\frac{2}{3}} = \boxed{0/5}$

۶

$$\frac{\sin^4\alpha+4\cos^2\alpha}{1+\cos^2\alpha}-\frac{\cos^4\alpha+4\sin^2\alpha}{1+\sin^2\alpha}=\frac{(1-\cos^2)^2+4\cos^2\alpha}{1+\cos^2\alpha}-\frac{(1-\sin^2)^2+4\sin^2}{1+\sin^2}$$

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

$$=\boxed{\cos 2\alpha}$$

۷

$$\underbrace{\sin\left(\frac{9}{2}\pi+\alpha\right)}_{\cos\alpha}\ \underbrace{\cos\left(\frac{7\pi}{2}-\alpha\right)}_{-\sin\alpha}-\underbrace{\tan\left(\alpha-\frac{3\pi}{2}\right)}_{-\cot\alpha\ \Rightarrow\ \frac{3}{4}}=\frac{3}{5}\times\frac{-4}{5}+\frac{3}{4}=0{,}27$$

$$\tan\alpha=\frac{4}{3}=\frac{\sin\alpha}{\cos\alpha}$$

$$1+\tan^2=\frac{1}{\cos^2\alpha}\longrightarrow 1+\frac{16}{9}=\frac{1}{\cos^2}$$

$$\cos\alpha=\frac{3}{5}\ ,\quad 1-\frac{9}{25}=\frac{16}{25}\ \to\ \sin\alpha=\frac{4}{5}$$

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$$\underbrace{3\cos\frac{\pi}{3}}_{\frac{3}{2}}+\sqrt{2}\sin\frac{\pi}{12}-\sqrt{2}\cos\frac{\pi}{12}$$

$$\frac{3}{2}+\underbrace{\sqrt{2}\left(\sin\frac{\pi}{12}_{15}-\cos\frac{\pi}{12}_{15}\right)}_{\sqrt{2}\,(\underbrace{\sin -30}_{-\frac{1}{2}})}=\frac{3}{2}-1=\boxed{\frac{1}{2}}$$

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$$1+\left(\tan\frac{\alpha}{2}\right)^2=\frac{1}{\cos^2\frac{\alpha}{2}}\to 1+\frac{1}{16}=\frac{1}{\cos^2\frac{\alpha}{2}}\to\cos^2\frac{\alpha}{2}=\frac{16}{17}\ ,\ \sin^2\frac{\alpha}{2}=\frac{1}{17}$$

$$\sin\frac{\alpha}{2}=\frac{1}{\sqrt{17}}=\frac{\sqrt{17}}{17}\ ,\ \sin\alpha=2\times\frac{4}{\sqrt{17}}\times\frac{1}{\sqrt{17}}=\frac{8}{\sqrt{17}}$$

$$\frac{\tan\alpha-\sin\alpha}{\sin\alpha-\cos\alpha}=\frac{\frac{8}{15}-\frac{8}{17}}{\frac{8}{17}-\frac{15}{17}}=\frac{-16}{105}$$

۱۰

$$0<\frac{\cot\alpha}{\sin\alpha}\to 0<\frac{\cos\to +}{\sin^2\ +}\longrightarrow$$ ناحیه ۱ یا ۴

$\boxed{\text{ناحیه ۴}}$ در

$$2\sin\alpha<\underbrace{\sin 2\alpha}_{2\sin\alpha\cos\alpha}\longrightarrow \underbrace{2\sin}_{-}\underbrace{(1-\cos)}_{+}<0\to$$ ناحیه ۳ یا ۴