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

۲۰

**۱**

$S = \sqrt{3} \times 6 \times \sin\alpha \times \frac{1}{2} = 4.5 \to \sin\alpha = \frac{3}{2\sqrt{3}}$ گویا کردن $\frac{\sqrt{3}}{2} = \sin\alpha$ → $120^\circ$ , $60^\circ$

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

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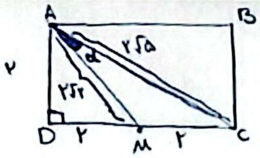
**۲**




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

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

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

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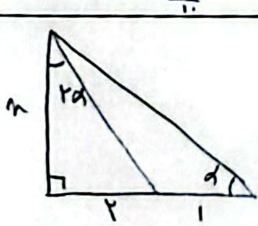
**۳**




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

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

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

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

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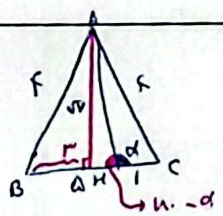
**۴**




$\tan\alpha = \tan 180 - \alpha = \frac{\sqrt{7}}{3}$ ~ ربع ۲ tan منفی ~ $\boxed{-\frac{\sqrt{7}}{3}}$

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

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**۵**

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

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

$\tan^2 x = \frac{\frac{1}{3}}{\frac{2}{3}} = \boxed{0.5}$

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|---|---|
| ۶ | $\dfrac{\sin^4\alpha+4\cos^2\alpha}{1+\cos^2\alpha}-\dfrac{\cos^4\alpha+4\sin^2\alpha}{1+\sin^2\alpha}=\dfrac{(1-\cos^2)^2+4\cos^2\alpha}{1+\cos^2\alpha}-\dfrac{(1-\sin^2)^2+4\sin^2}{1+\sin^2}$ <br> $=\dfrac{(1+\cos^2\alpha)^2}{1+\cos^2\alpha}-\dfrac{(1+\sin^2\alpha)^2}{1+\sin^2\alpha}=1+\cos^2\alpha-1-\sin^2\alpha=\cos^2\alpha-\sin^2\alpha$ ۲ <br> $=\boxed{\cos 2\alpha}$ |
| ۷ | $\underbrace{\sin\left(\frac{9}{2}\pi+\alpha\right)}_{\cos\alpha}\ \underbrace{\cos\left(\frac{7\pi}{2}-\alpha\right)}_{-\sin\alpha}-\underbrace{\tan\left(\alpha-\frac{3\pi}{2}\right)}_{-\cot\alpha \to \frac{3}{4}}=\frac{3}{5}\times\frac{-4}{5}+\frac{3}{4}=/27$ ۲ <br> $\tan\alpha=\frac{4}{3}=\frac{\sin\alpha}{\cos\alpha}$ <br> $1+\tan^2=\frac{1}{\cos^2\alpha}\to 1+\frac{16}{9}=\frac{1}{\cos^2}$ <br> $\cos\alpha=\frac{3}{5}\ ,\ 1-\frac{9}{25}=\frac{16}{25}\to\sin\alpha=\frac{4}{5}$ |
| ۸ | $3\cos\frac{\pi}{3}+\sqrt{2}\sin\frac{\pi}{12}-\sqrt{2}\cos\frac{\pi}{12}$ ۲ <br> $\frac{3}{2}+\underbrace{\sqrt{2}\left(\sin\frac{\pi}{12}-\cos\frac{\pi}{12}\right)}_{\sqrt{2}\,(\underbrace{\sin -30}_{-\frac{1}{2}})}=\frac{3}{2}-1=\boxed{\frac{1}{2}}$ |
| ۹ | $1+\left(\tan\frac{\alpha}{2}\right)^2=\frac{1}{\cos^2\frac{\alpha}{2}}\to 1+\frac{1}{16}=\frac{1}{\cos^2\frac{\alpha}{2}}\to\cos^2\frac{\alpha}{2}=\frac{16}{17}\ ,\ \sin^2\frac{\alpha}{2}=\frac{1}{17}$ <br> $\sin\frac{\alpha}{2}=\frac{1}{\sqrt{17}}=\frac{\sqrt{17}}{17}\ ,\ \sin\alpha=2\times\frac{4}{\sqrt{17}}\times\frac{1}{\sqrt{17}}=\frac{8}{\sqrt{17}}$ ۲ <br> $\dfrac{\tan\alpha-\sin\alpha}{\sin\alpha-\cos\alpha}=\dfrac{\frac{8}{15}-\frac{8}{17}}{\frac{8}{17}-\frac{15}{17}}=\dfrac{-16}{105}$ |
| ۱۰ | $0<\dfrac{\cot\alpha}{\sin\alpha}\to 0<\dfrac{\cos^{+}}{\sin^2{}^{+}}\to$ ناحیه ۱ یا ۴ ۲ <br> در $\boxed{\text{ناحیه ۴}}$ <br> $2\sin\alpha<\underbrace{\sin 2\alpha}_{2\sin\alpha\cos\alpha}\to\underbrace{2\sin}_{\ominus}(\underbrace{1-\cos}_{+})<0\to$ ناحیه ۳ یا ۴ |


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