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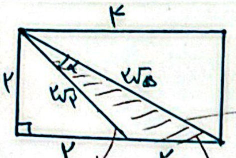
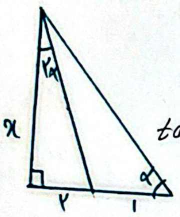
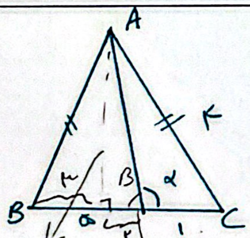
نام و نام خانوادگی ...شارینا جعفری... پاسخنامه تشریحی تکلیف شماره ..۲۷.. کلاس ..یازدهم تجربی B...

$S=4.5$ $\sqrt3 , 6$ $S=\frac12 ab\sin\alpha \longrightarrow \frac12\times 6\times\sqrt3\times\sin\alpha=\frac92$ $\sin\alpha=\frac{3}{2\sqrt3}\times\frac{\sqrt3}{\sqrt3}=\frac{\sqrt3}{2}\longrightarrow\alpha=60^\circ , 120^\circ \quad \frac{max}{min}=\frac{120}{60}=2$ ۴	۱
 $\tan(45+\alpha)=2=\frac{\tan\alpha+1}{1-\tan\alpha}\to\tan\alpha=\frac13\to\cot\alpha=3$ $\sqrt{4^2+2^2}=\sqrt{20}=2\sqrt5$ $\sqrt{2^2+2^2}=2\sqrt2$ از فرمول کسینوس‌ها $\to 2=\sqrt{(2\sqrt2)^2+(2\sqrt5)^2-2\times2\sqrt2\times2\sqrt5\times\cos\alpha}$ $2=\sqrt{28-8\sqrt{10}\cos\alpha}\Rightarrow4=28-8\sqrt{10}\cos\alpha$ $8\sqrt{10}\cos\alpha=24$ $\cos\alpha=\frac{24}{8\sqrt{10}}\times\frac{\sqrt{10}}{\sqrt{10}}=\frac{3\sqrt{10}}{10}$ ۶	۲
 $\cot\alpha=?$ $\tan2\alpha=\frac3x\longrightarrow\tan2\alpha=\frac{2\tan\alpha}{1-\tan^2\alpha}\Rightarrow\frac3x=\frac{\frac{2x}{3}}{1-\frac{x^2}{9}}\Rightarrow\frac{18x}{3(9-x^2)}$ $\tan\alpha=\frac x3 \quad \frac{9-x^2}{9}$ $\frac{6x}{9-x^2}=\frac3x$ $3x^2=9-x^2\Rightarrow4x^2=9$ $x^2=\frac94 \quad x=\pm\frac32\longrightarrow x=\frac32 \quad \cot\alpha=\frac63=2$ ۶	۳
 $\tan\alpha=?$ $\alpha=\pi-\beta$ $\sqrt{4^2-3^2}=\sqrt7$ $\tan\beta=\frac{\sqrt7}{2}\Rightarrow\underbrace{\tan(\pi-\beta)}_{\tan\alpha}=-\tan\beta\Rightarrow-\frac{\sqrt7}{2}$ ۶	۴
$2\sin^2x+\cos^2x=\frac43\longrightarrow\tan^2x=?$ $\sin^2x+\underbrace{\sin^2x+\cos^2x}_{1}=\frac43\Rightarrow\sin^2x=\frac43-1=\frac13$ $1+\cot^2x=\frac{1}{\sin^2x} \quad \cot^2x=3-1=2 \quad \tan^2x=\frac12$ ۶	۵

$$\frac{\sin^4 x + 4\cos^2\alpha}{1+\cos^2\alpha} - \frac{\cos^4\alpha + 4\sin^2\alpha}{1+\sin^2\alpha} = \frac{(1-\cos^2\alpha)^2+4\cos^2\alpha}{1+\cos^2\alpha} - \frac{(1-\sin^2\alpha)^2+4\sin^2\alpha}{1+\sin^2\alpha}$$ 6

$(1-\cos^2\alpha)^2 \quad (1-\sin^2\alpha)^2$

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

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

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

د

$\cos^2\alpha - \sin^2\alpha = \cos 2\alpha$

$\tan\alpha = \frac{4}{3}$ $\alpha \longrightarrow$ ربع سوم

$\cos\alpha = -\frac{3}{5}$ $\sin\alpha = -\frac{4}{5}$ $\cot\alpha = \frac{3}{4}$

$\sin(\frac{9\pi}{2}+\alpha)\cos(\frac{7\pi}{2}-\alpha) - \tan(\alpha - \frac{3\pi}{2})$

$\sin(\frac{\pi}{2}+\alpha)\cos(\frac{3\pi}{2}-\alpha) - \tan(\alpha - \frac{3\pi}{2})$ 7

$\cos\alpha \times -\sin\alpha + \cot\alpha$ د

$-\frac{3}{5} \times -(-\frac{4}{5}) + \frac{3}{4} = -\frac{12}{25} + \frac{3}{4} = \frac{-48+75}{100} = \frac{27}{100}$

$(3\cos 4x + \sqrt{2}\sin x - \sqrt{2}\cos x)$ if $x = \frac{\pi}{12}$

$3\cos(\frac{\pi}{3}) + \sqrt{2}\sin(\frac{\pi}{12}) - \sqrt{2}\cos(\frac{\pi}{12}) = 3\cos(\frac{\pi}{3}) + \sqrt{2}\times\sqrt{2}\sin(-\frac{\pi}{6})$ د

$3\times\frac{1}{2} + 2\times -\frac{1}{2} = \frac{3}{2} - 1 = \frac{1}{2}$

$\sqrt{2}(\underbrace{\sin\frac{\pi}{12} - \cos\frac{\pi}{12}})$ 8

$\sqrt{2}\sin(x - \frac{\pi}{4}) \to \sqrt{2}\sin(\underbrace{\frac{\pi}{12} - \frac{\pi}{4}}_{-\frac{\pi}{6}})$

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

$\sqrt{289} = 17$ $\sin\alpha = \frac{8}{17}$ $\cos\alpha = \frac{15}{17}$

$\tan\alpha = \frac{2\tan(\frac{\alpha}{2})}{1-\tan^2(\frac{\alpha}{2})} \Rightarrow \tan\alpha = \frac{2\times\frac{1}{4}}{1-\frac{1}{16}} = \frac{\frac{1}{2}}{\frac{15}{16}} = \frac{8}{15}$ $\frac{\frac{8}{15}-\frac{8}{17}}{\frac{8}{17}-\frac{15}{17}} = \frac{\frac{8(17-15)}{17\times 15}}{\frac{-7}{17}}$ 9

د

$\frac{-16}{105}$

$2\sin\alpha < \sin 2\alpha$, $0 < \frac{\cot\alpha}{\sin\alpha}$ در کدام ربع؟

① د

$\frac{\frac{\cos x}{\sin x}}{\frac{\sin x}{1}} > 0 \Rightarrow \frac{\cos\alpha}{\sin^2\alpha} > 0 \Rightarrow \boxed{\cos\alpha > 0} \to 0 < \cos < 1$

①, ② → ناحیه چهارم 10

$\to 2\sin\alpha < 2\sin\alpha\cos\alpha$

②

اگر $0<\sin$ ← چون در $\cos\alpha$ این مورد ضرب شده کوچکتر خواهد شد، پس sin باید منفی باشد $\Rightarrow \boxed{\sin\alpha < 0}$