نام و نام خانوادگی ...[illegible]... پاسخنامه تشریحی تکلیف شماره ..۱۵.. کلاس ...دوازدهم [illegible]...

۱	$T = \frac{4\pi}{\lvert b \rvert} \Rightarrow \frac{\pi}{2} \Rightarrow AC = \frac{\pi}{2}$ $B = \binom{0}{y} \Rightarrow y = \tan(\frac{\pi}{4}) = 1$ $\Big\} S = \frac{y \times AC}{2} = \frac{\pi}{4}$
۲	$a_1 = \frac{2}{3} \Rightarrow \frac{4}{9} - \frac{2}{3}\sin\alpha - \frac{1}{4}\cos^2\alpha = 0$ $a_2 = \sin\alpha - 2$ $\sin^2\alpha + 4 - 4\sin\alpha - \sin^2\alpha + 2\sin^4\alpha - \frac{1}{4}\cos^2\alpha$ $+ 2\sin\alpha + \frac{1}{4}\cos^2\alpha = 4$
۳	$2^{-\frac{\sin\alpha}{\cos\alpha}} = 2^{3}$ $\quad -\tan\alpha = 3$
۴	
۵	$\frac{3\sin x + \sin x \cos x}{2\sin^2 x} = \frac{3}{2\sin x} + \frac{\cos}{2\sin x} = \frac{3 + \cos x}{2\sin x} < 0$ $\sin x < 0$ $\frac{\sin^2 x - 1}{\cos x} = \frac{-\cos^2 x}{\cos x} = -\cos x > 0 \Rightarrow \cos x < 0,\ \sin x < 0 \Big\} \Rightarrow$ ناحیه ۳

$$\frac{\sin^3 x}{\cos x} + \frac{\cos^3 x}{\sin x} = \frac{2}{\sin 2x} = \frac{2}{2\sin x\cos x} = \frac{2}{2\times\frac{-3}{2}\sin^2 x} = \frac{-2}{3\sin^2 x} = \frac{-2}{3\times\frac{4}{13}} = \frac{-26}{12} = -2\frac{1}{6}$$

$$\frac{3\sin x + 2\cos x}{\sin x\cos x} = 0 \Rightarrow 3\sin x = -2\cos x$$ ۶

$$\Rightarrow \frac{-3}{2}\sin x = \cos x$$

$$\sin^2 x + \frac{9}{4}\sin^2 x = 1$$

$$\frac{13}{4}\sin^2 x = 1 \Rightarrow \sin x = \frac{2\sqrt{13}}{13}$$

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$$\cancel{(1-2\sin^2 5)}\,\cancel{(2\cos^2 10-1)}\left(\frac{1-\tan^2 20}{1+\tan^2 20}\right) \qquad \frac{\frac{\cos^2 20-\sin^2 20}{\cos^2 20}}{\frac{\cos^2 20+\sin^2 20}{\cancel{\cos^2 20}}} = \frac{(\cos^2 10-\sin^2 10)^2 - 4\sin^2 10\cos^2 10}{1}$$

$$\cos 10 \times \cos 20 \times \cos 40$$

$$\cos 10\,(\cos^2 10 - \sin^2 10)\underbrace{(\cos^4 10 + \sin^4 10 - 6\cos^2 10\sin^2 10)}_{(\cos^2 10 - \sin^2 10)^2 - 4\sin^2 10\cos^2 10}$$ ۸

$$\sin^2\alpha + 9\cos^2\alpha + 6\sin\alpha\cos\alpha = 4$$

$$1 + 8\cos^2\alpha + 6\sin\alpha\cos\alpha = 4$$

$$\cos\alpha(8\cos\alpha + 6\sin\alpha) = 3$$

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