نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۱۰ کلاس ..... B .....

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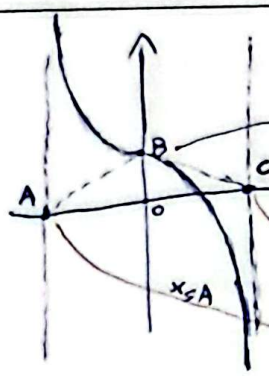

$y = \tan\left(-2x + \frac{\pi}{4}\right)$

$x=0 \rightarrow \tan\left(\frac{\pi}{4}\right) = 1$

$S_{ABC} = \frac{AC \cdot BO}{2} = \frac{\frac{\pi}{2}}{2} = \frac{\pi}{4}$

$x=C \rightarrow \tan\left(-2C + \frac{\pi}{4}\right) = -\infty \rightarrow -2C + \frac{\pi}{4} = -\frac{\pi}{2} \rightarrow -2C = -\frac{3\pi}{4} \rightarrow C = \frac{3\pi}{8}$

$x=A \rightarrow \tan(-2A + \frac{\pi}{4}) = +\infty \rightarrow -2A + \frac{\pi}{4} = \frac{\pi}{2} \rightarrow -2A = \frac{\pi}{4} \rightarrow A = -\frac{\pi}{8}$

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$x^2 - (\sin\alpha)x - \frac{1}{4}\cos^2\alpha = 0 \xrightarrow{x=\frac{1}{2}} \frac{1}{4} - \frac{1}{2}\sin\alpha - \frac{1}{4}\sin^2\alpha + \frac{1}{24} = 0$

$\cos^2\alpha = 1 - \sin^2\alpha$

$\sin\alpha = \frac{7}{3}$ غ ق ق

$\sin\alpha = \frac{1}{3}$ ✓

$\cos\alpha = \frac{2\sqrt{2}}{3}$

$1 + \tan^2\alpha = \frac{1}{\cos^2\alpha} = \frac{1}{\frac{8}{9}} = \frac{9}{8}$

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$\log(\sin\alpha) - \log(-\cos\alpha) = \log 3 \rightarrow \sin\alpha > 0 \quad -\cos\alpha > 0 \rightarrow \cos\alpha < 0$ ناحیه دوم

$\log\left(\frac{\sin\alpha}{-\cos\alpha}\right) = \log 3 \rightarrow \frac{\sin\alpha}{-\cos\alpha} = -\tan\alpha = 3 \rightarrow \tan\alpha = -3$

$1 + \tan^2\alpha = \frac{1}{\cos^2\alpha} \rightarrow \cos^2\alpha = \frac{1}{10} \rightarrow \cos\alpha = \pm\frac{1}{\sqrt{10}}$ غ ق ق $\rightarrow \cos\alpha = -\frac{1}{\sqrt{10}} \rightarrow \sin\alpha = \frac{3}{\sqrt{10}}$

$\sin\alpha - \cos\alpha = \frac{3}{\sqrt{10}} - \left(\frac{-1}{\sqrt{10}}\right) = \frac{4}{\sqrt{10}} = \frac{4\sqrt{10}}{10} = \frac{2\sqrt{10}}{5}$

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$\sin^4\theta + \underbrace{\cos^2\theta}_{1-\sin^2\theta} = \frac{4}{5} \rightarrow \sin^4\theta - \sin^2\theta = -\frac{1}{5}$

$\underbrace{\cos^4\theta}_{(1-\sin^2\theta)^2} + \sin^2\theta = \sin^4\theta - 2\sin^2\theta + 1 + \sin^2\theta = \underbrace{\sin^4\theta - \sin^2\theta}_{-\frac{1}{5}} + 1 = \frac{4}{5}$

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$\frac{\sin x(3+\cos x)}{3\sin x + \sin x\cos x} < 0 \rightarrow \frac{3+\cos x}{2\sin x} < 0$ (مثبت) $\rightarrow \sin x < 0$

$\frac{\sin\tan x}{\frac{\sin^2 x}{\cos x}} - \frac{1}{\cos x} > 0 \rightarrow \frac{\cos^3 x}{\sin^2 x - 1} > 0 \rightarrow \cos x > 0$

انتهای کمان متناظر در ناحیه چهارم است

$$\frac{2}{\sin x}+\frac{3}{\cos x}=0 \longrightarrow \frac{2\cos x+3\sin x}{\sin x\cdot\cos x}=0 \longrightarrow 2\cos x+3\sin x=0 \rightarrow \cos x=-\frac{3}{2}\sin x$$

$$\tan x=\frac{\sin x}{-\frac{3}{2}\sin x}=-\frac{2}{3} \rightarrow \cot x=-\frac{3}{2} \longrightarrow \tan x+\cot x=\frac{-13}{6}$$

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$$\frac{\sqrt{1+\sin 20^\circ}}{\sin 20^\circ+\sin 10^\circ}$$

$$\sqrt{1+\cos 40^\circ}=\sqrt{2}\cos 20^\circ$$

$$2\sin\left(\frac{20+10}{2}\right)\cos\left(\frac{20-10}{2}\right)=2\sin 20^\circ\cos 20^\circ$$

$$=\frac{\sqrt{2}\cos 10^\circ}{2\sin 20^\circ\cos 10^\circ}=\sqrt{2}$$

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$$\left(1-2\sin^2 20^\circ\right)\left(2\cos^2 10^\circ-1\right)\left(\frac{1-\tan^2 20^\circ}{1+\tan^2 20^\circ}\right)=\frac{1}{8}\cot 10^\circ$$

$$\cos 40^\circ \cdot \cos 20^\circ \cdot \cos 40^\circ = \frac{1}{8}\sin 80^\circ$$

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$$\sin\alpha+2\cos\alpha=2 \rightarrow \sin^2\alpha=(2-2\cos\alpha)^2 \longrightarrow 1-\cos^2\alpha=4\cos^2\alpha-8\cos\alpha+4$$

$$\rightarrow \underbrace{5\cos^2\alpha}_{4+\cos 2\alpha}-8\cos\alpha=-3 \longrightarrow \cos 2\alpha-8\cos\alpha=-4$$

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$$\sin\hat{B}\sin\hat{C}=\cos^2\frac{\hat{A}}{2} \rightarrow \frac{1+\cos A}{2}$$

$$\rightarrow \frac{1}{2}\left(\cos(B-C)-\cos(B+C)\right)$$

$$1+\cos A=\cos(B-C)+\cos(B+C)$$

$$\cos A=\cos(B-C)+\cos(A)$$

$$1=\cos(B-C) \rightarrow B-C=0^\circ$$

$$\cos 0^\circ$$

$$B=C \rightarrow 72^\circ \rightarrow B+C=144^\circ \rightarrow A=36^\circ$$

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