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

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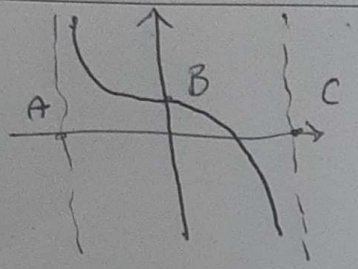

$y = \tan(-2x + \frac{\pi}{2})$ $\quad f(0) = \tan(\frac{\pi}{2}) = 1$

$T = \frac{\pi}{|a|} \rightarrow T = \frac{\pi}{2}$

$S_{ABC} = \frac{1}{2} \times \frac{\pi}{2} \times 1 = \frac{\pi}{4}$

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$f(\frac{\pi}{4}) = 0 \rightarrow \frac{\pi}{9} - (\sin\alpha)\frac{\pi}{4} - \frac{1}{4}\cos^2\alpha = 0$

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

$\rightarrow \frac{\pi}{9} - \frac{\pi}{4}\sin\alpha - \frac{1}{\pi} + \frac{1}{4}\sin^2\alpha = 0 \rightarrow \frac{1}{4}\sin^2 - \frac{\pi}{4}\sin\alpha + \frac{\pi}{9} - \frac{1}{\pi} = 0$

$\rightarrow 9\sin^2\alpha - 24\sin\alpha + 7$ $\quad \sin\alpha = \begin{cases} \frac{7}{3} \text{ ق} \\ 1 \text{ ق} \end{cases}$

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

۳

$-\cos\alpha = \cos(\pi - \alpha)$

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

$\frac{\sin\alpha}{-\cos\alpha} = 3 \rightarrow \sin\alpha = -3\cos\alpha$

$\rightarrow \sin\alpha - \cos\alpha = -3\cos\alpha$

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$\sin^4\alpha + \cos^2\alpha = \frac{8}{9}$ $\xrightarrow{\cos^2\alpha = 1 - \sin^2\alpha}$

$\sin^4\alpha - \sin^2\alpha + \frac{1}{9} = 0 \rightarrow \sin^2\alpha(\sin^2\alpha - 1) + \frac{1}{9} = 0$

$(1 - \cos^2\alpha)(-\cos^2\alpha) + \frac{1}{9} = 0$

$\cos^4\alpha - \cos^2\alpha + \frac{1}{9} = 0 \rightarrow \cos^4\alpha - (1 - \sin^2\alpha) + \frac{1}{9} = 0$

$\cos^4\alpha + \sin^2\alpha - \frac{8}{9} = 0 \rightarrow$ ۵/۳

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$\sin x \frac{\sin x}{\cos x} - \frac{1}{\cos x} > 0$ $\quad \frac{\sin^2 x - 1}{\cos x} = \frac{-\cos^2 x}{\cos x} > 0$

$-\cos x > 0$ I

$\rightarrow \cos x < 0$

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

II

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در ناحیه سوم قرار دارد

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

~~$\tan x + \cot x = \frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} \times \frac{\sin^2 x + \cos^2 x}{\sin x \cos x} \times \frac{1}{\sin x \cos x}$~~ ٤

$2\cos x + 3\sin x = 0 \rightarrow \tan x = -\frac{2}{3} \cdot \cot = \frac{-3}{2} \rightarrow -\frac{2}{3} + \frac{-3}{2} = \frac{-4-9}{6}$

$= -\frac{13}{6}$

$$\frac{\sqrt{1+\sin 20^\circ}}{\sin 10^\circ + \cos 10^\circ} = \frac{\sqrt{\sin^2 10^\circ + \cos^2 10^\circ + 2\sin 10^\circ \cos 10^\circ}}{\sin 10^\circ + \cos 10^\circ}$$

$\sin 20^\circ + \cos 10^\circ$

$\sin 10^\circ + \cos 10^\circ$ ٧

$$\frac{\sin^2 10^\circ + \cos^2 10^\circ}{\cos^2 10^\circ + \cos 10^\circ} = \frac{\sin^2 10^\circ + \cos^2 10^\circ}{\cos^2 10^\circ - \sin^2 10^\circ + \cos 10^\circ}$$

$\cos 10^\circ \times \cos 20^\circ \times \cos 40^\circ \times \sin 10^\circ$

$= \frac{1}{2}\sin 20^\circ \times \cos 20^\circ \times \cos 40^\circ$ $\quad \sin 10^\circ$

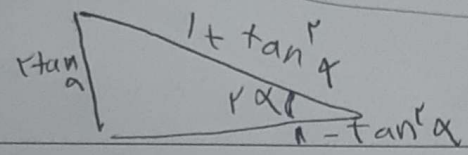
$\sin 10^\circ$ $\quad \sin 10^\circ$

$= \frac{1}{2}\sin 40^\circ \cos 40^\circ = \frac{1}{4}\cos 10^\circ$ ٨

$\sin 10^\circ$

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

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



$= \frac{1}{8}$

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