تکلیف ۲۸

یازدهم ریاضی ۵

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امیرمحمد ...

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۱ — (۲)

$\frac{1}{\sqrt{\cos^2 a}} - \frac{1}{\cot a} = \frac{1-\sin a}{|\cos a|}$

$\frac{1}{|\cos a|} - \frac{\sin a}{\cos a} = \frac{1-\sin a}{|\cos a|} \quad \cos a > 0$ ✓

$\frac{\sin a}{\cos a} = \cos a \to +$

$\frac{}{\sqrt{1-\cos^2 a}} \to \frac{\sin a}{\cos a} > 0 \quad \cos a > 0 \to \sin a > 0$

ربع اول ✓

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۲ — (۲)

$-\frac{\pi}{12} < x < \frac{5\pi}{12} \qquad \sin 2x = \frac{m-1}{4}$

$-\frac{\pi}{6} < 2x < \frac{5\pi}{6}$

$-\frac{1}{2} < \sin 2x \le 1 \to -\frac{1}{2} < \frac{m-1}{4} \le 1 \to -\frac{1}{2} < \frac{m-1}{4} \to -2 < m-1 \to m > -1$

$\frac{m-1}{4} \le 1 \to m-1 \le 4 \to m \le 5$

(۳] گزینه) ✓

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۳ — (۲)

$\tan x + \cot x = -4 \qquad 3\pi < 4x < 4\pi$

$\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} \to \frac{1}{\sin x \cos x} = -4 \to \sin x \cos x = -\frac{1}{4}$ ؛ $\sin x + \cos x = t$

$\frac{1}{\sin^3 x + \cos^3 x} \to (\sin x+\cos x)(1-\sin x\cos x) = \frac{1}{(\sin x+\cos x)\frac{5}{4}}$

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

$-\sqrt{\frac{1}{2}} = t$

$\to \frac{1}{\frac{5}{4}t} \to \frac{4}{5t} \to \frac{4}{5} \times -\sqrt{2} \to -\frac{4\sqrt{2}}{5}$ ✓

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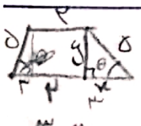
۴ — (۲)



$\cos\theta = 0/6 = \frac{x}{5} \to x = 3$

$\sin^2 x + \cos^2 x = 1 \to \sin x = 0/8$

$\sin\theta = 0/8 = \frac{y}{5} \to y = 4 = h$

$3+3+2 = 8$

$\frac{4(8+2)}{2} \to 20$ ✓

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۵ — (۲)

$\tan 285 + \tan -195 - \sin 105\,\cos 255 = k\cos^2 15$

$\tan(\frac{3\pi}{2}+15) \cdot \tan(-\pi+15) - \sin(\frac{\pi}{2}+15) \cdot \cos(\frac{3\pi}{2}-15) \to -\cot 15 \cdot \tan 15 - (\sin 15 \cdot -\sin 15)$

$-1 + \sin^2 15 = -\cos^2 15$

$k = -1$ ✓

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۶ — (۲)

$A = \sqrt{3}\cos 150 \cdot \sin 240 - \sqrt{3}\sin 60 \cos 513 \to -\frac{3}{2}\sin 240 - \cos 513 \to +\frac{3}{2}\cos 27 + \cos 27 \to +\frac{5}{2}\cos 27$

$-\frac{\sqrt{3}}{2} \qquad \frac{\sqrt{3}}{2}$

$\sin(\frac{3\pi}{2} - 27) \to -\cos 27 \qquad \cos(\pi - 27) \to -\cos 27$

$\frac{5}{2}$ ✓ $\cos 27$

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۷ — (۱)

$f(x) = 16\cos^2(2x)\cos^2(4x)\cos^2(12x)\cos^2(24x) \to \frac{3}{4}\cos^2(\frac{\pi}{12})$

$f(\frac{\pi}{3}) \to \times \sin^2(2x) \to 16(\cos^2 x \cdot \sin^2 x)^2 \ldots \to \frac{1}{4}\sin^2 4x$

$\frac{\sin^2 4x}{4} \qquad \sin^2(2x) \to \frac{4\sin^2 4x\cos^2 4x \ldots}{\sin^2(2x)}$

$\frac{\sin^2 12x\cos^2 12x \ldots}{\sin^2(2x)} \Rightarrow \frac{1}{4}\sin^2(24x)\cdot\cos^2(24x) \qquad \frac{1}{16}\sin^2(48x)$ ✓ $\to f(\frac{\pi}{3}) \to \frac{1}{16}\times\frac{\sin^2(\frac{48\pi}{3})}{\sin^2\frac{\pi}{12}}$

$\sin^2(2x) \qquad \frac{2}{16(\sqrt{6}-\sqrt{2})^2} \leftarrow \frac{\sin^2(2x)}{} \leftarrow \frac{1}{16}\times\frac{4}{(\sqrt{6}-\sqrt{2})^2}$

جواب آخر

[illegible]

$\frac{1-\sin x}{1+\sin x}=٤$ $\tan\frac{x}{٢}=?$ $\sin^2 x+\cos^2 x=1$ ②

$\to ٤+٤\sin x=1-\sin x-٥\sin x=-٣ , \sin x=-\frac{٣}{٥}$ $\frac{٩}{٢٥}$

$-\frac{٤}{٥}=\cos x$

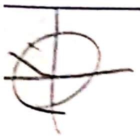
$\tan x=\frac{٢\tan\frac{x}{٢}}{1-\tan^2(\frac{x}{٢})} \Rightarrow \frac{٣}{٤}=\frac{٢t}{1-t^2} \to ٣-٣t^2=٨t \to ٣t^2+٨t-٣=0$ $\tan x=\frac{٣}{٤}$

$\tan(\frac{x}{٢})=t$ $(t+٣)(٣t-1)=0$

$\checkmark -٣=t$ $\frac{\pi}{٢}<\frac{x}{٢}<\frac{٣\pi}{٤}$ $\pi<x<\frac{٣\pi}{٢}$ (ربع سوم) $\Leftarrow$ $-٣ , \frac{1}{٣}$

$\frac{\sin\theta}{1-\cos\theta}+\frac{1+\cos\theta}{\sin\theta}\to\frac{\sin^2\theta+1-\cos^2\theta}{\sin\theta-\cos\theta\sin\theta}\to\frac{٢\sin^2\theta}{\sin\theta(1-\cos\theta)}\to\frac{٢\sin\theta}{1-\cos\theta}=\frac{٢(٢\sin\frac{\theta}{٢}\cos\frac{\theta}{٢})}{1-(1-٢\sin^2\frac{\theta}{٢})}$ ② ٩

$\to\frac{٢\times٢\sin\frac{\theta}{٢}\cos\frac{\theta}{٢}}{٢\times\sin^2(\frac{\theta}{٢})}\to ٢\cot\frac{\theta}{٢}\to k=٢$ ✓



$\sin a=\frac{\sqrt{٢}}{1٠}$ $\cos(\frac{11\pi}{٤}+a)\Rightarrow\cos(\frac{٣\pi}{٤}+a)\to-\frac{\sqrt{٢}}{٢}\times-\frac{٧\sqrt{٢}}{1٠}-\frac{\sqrt{٢}}{1٠}\times\frac{\sqrt{٢}}{٢}$ ② 1٠

$\frac{٣}{٥}=\frac{٦}{1٠}$

-٧

$f(\frac{\pi}{٣٦})=1٦\cos^2(\frac{\pi}{1٢})\cos^2(\frac{\pi}{٦})\cos^2(\frac{\pi}{٣})\cos^2(\frac{٢\pi}{٣})$

$\cos^2\frac{\pi}{1٢}=\frac{1+\cos\frac{\pi}{٦}}{٢}$ ($\frac{\sqrt{٣}}{٢}$) $\to\cos^2\frac{\pi}{1٢}=\frac{٢+\sqrt{٣}}{٤}$

$f(\frac{\pi}{٣٦})=1٦(\frac{٢+\sqrt{٣}}{٤})\times\frac{٣}{٤}\times\frac{1}{٤}\times\frac{1}{٤}=\boxed{\frac{٣(٢+\sqrt{٣})}{1٦}}$