نام و نام خانوادگی [illegible] پاسخنامه تشریحی تکلیف شماره ۲۸ کلاس یازدهم ریاضی B

۱۹٫۵

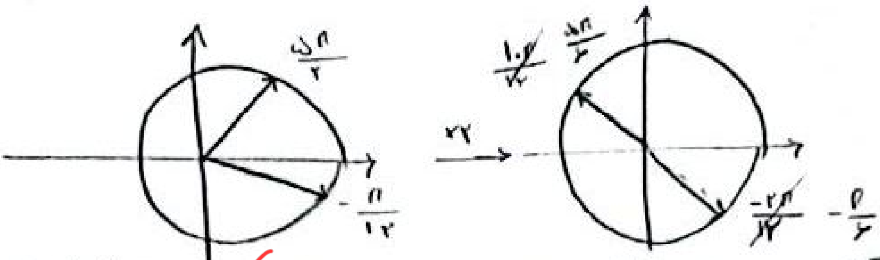
۱ (۲)

$\cot\alpha = \frac{\cos\alpha}{\sqrt{1-\cos^2\alpha}} = \frac{\cos\alpha}{|\sin\alpha|} \Rightarrow \sin\alpha > 0 \longrightarrow$ ربع ۱ یا ۲

$\frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1-\sin\alpha}{|\cos\alpha|} \Rightarrow \cos\alpha > 0$ ربع ۱ یا ۴

جواب اول مشترک ربع α است ①

۲ (۲)



$\underbrace{-\frac{1}{2} < \sin 2x \leq 1}_{II}$

$\underbrace{-\frac{1}{2} < \frac{m-1}{4} \leq 1}_{I}$

$m \in (-1,5]$ ⟵ II) $-2 < m-1 \Rightarrow -1 < m$ I) $m-1 \leq 4 \Rightarrow m \leq 5$

۳ (۱٫۵)

$\tan x + \cot x = -3 = \frac{2}{\sin 2x} \Rightarrow \sin 2x = \frac{-2}{3} = 2\sin x \cdot \cos x \Rightarrow \sin x \cdot \cos x = \frac{-1}{3}$

$3\pi < 4x < 4\pi \Rightarrow \frac{3\pi}{4} < x < \pi$

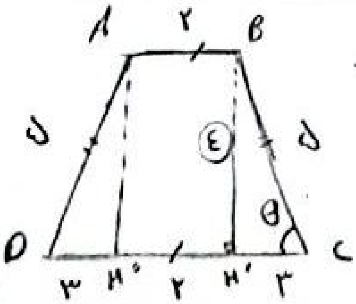
$(\sin x + \cos x)^2 = \sin^2 x + \cos^2 x + 2\sin x \cdot \cos x = \cancel{\frac{1}{3}} \Rightarrow \sin x + \cos x = \pm\sqrt{\frac{2}{3}}$

$-\sqrt{\frac{2}{3}}$ ⟵ ق‌ا

$\frac{1}{(\sin x + \cos x)(\sin^2 x + \cos^2 x - \sin x \cdot \cos x)} = \frac{1}{(\sin x + \cos x)(1 + \frac{1}{3})} = \frac{-3\sqrt{6}}{8}$

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

۴ (۲)



$\frac{CH'}{5} = \frac{6}{10} \Rightarrow CH' = 3$

$S = \frac{(2+8)\times 4}{2} = 20$

۵ (۲)

$\tan(\frac{3\pi}{2}+15) \times \tan(\pi+15) - \sin(\cancel{2\pi}+15) \times \cos(\frac{3\pi}{2}-15) \Rightarrow$

$(-\cot 15 \times \tan 15) - (\sin 15 \times -\sin 15) = -1 + \sin^2 15 = -\cos^2 15 \Rightarrow$

$K = -1$

$A = \sqrt{3}\times\cos(\pi+30)\times\sin(\frac{3\pi}{2}-27) - (\sqrt{2}\sin(\frac{\pi}{2}+45)\times\cos(\pi-27))$ (2) 6

$\sqrt{3}\times -\cancel{\cos 30}^{\frac{\sqrt{3}}{2}}\times -\cos 27 = \frac{3}{2}\cos 27$

$\sqrt{2}\times \cancel{\cos 45}^{\frac{\sqrt{2}}{2}}\times -\cos 27 = -\cos 27$

$A = \frac{3}{2}\cos 27 + \cos 27 = \frac{5}{2}\cos 27$

$\frac{A}{\cos 27} = \frac{5}{2} = 2.5$

$f(x) = 16\cos^2(\frac{\pi}{12})\times\cos^2(\cancel{\frac{\pi}{6}}^{30})\times\cos^2(\frac{\pi}{3})\times\cos^2(\frac{2\pi}{3})$ (2) 7

$\cos\frac{\pi}{12} = \frac{\sqrt{6}+\sqrt{2}}{4} \xrightarrow{\text{توان } 2} \frac{8+4\sqrt{3}}{16} \xrightarrow{\times 16} (8+4\sqrt{3})\times\frac{3}{4}\times\frac{1}{4}\times\frac{1}{4} =$

$\frac{24+12\sqrt{3}}{64} = \frac{6+3\sqrt{3}}{16}$

$\frac{1-\sin x}{1+\sin x} = 4 \Rightarrow 4+4\sin x = 1-\sin x \Rightarrow 5\sin x = -3 \Rightarrow \sin x = \frac{-3}{5}$ (2) 8

$\cos x = -\frac{4}{5}$

$\tan\frac{x}{2} = \frac{\frac{-3}{\cancel{5}}}{\frac{1}{\cancel{5}}} = -3 \leftarrow \boxed{\tan\frac{x}{2} = \frac{\sin x}{1+\cos x}}$

$\frac{\sin\theta}{1-\cos\theta} + \frac{1+\cos\theta}{\sin\theta} = k\cot\frac{\theta}{2} \Rightarrow k = 2$ (2) 9

$\frac{2\sin\frac{\theta}{2}\cdot\cos\frac{\theta}{2}}{\sin^2\frac{\theta}{2}+\cos^2\frac{\theta}{2}-(\cos^2\frac{\theta}{2}-\sin^2\frac{\theta}{2})}$; $\cot\frac{\theta}{2}$

$\frac{\cancel{2}\,\cancel{\sin\frac{\theta}{2}}\cdot\cos\frac{\theta}{2}}{\cancel{2}\sin^2\frac{\theta}{2}} = \cot\frac{\theta}{2}$

$\sin\alpha = \frac{\sqrt{2}}{10} \Rightarrow \cos\alpha = -\frac{\sqrt{98}}{10} = \frac{-7\sqrt{2}}{10}$ (2) 10

$\cos(\frac{11\pi}{4}+\alpha) = \cos(3\pi-\frac{\pi}{4}+\alpha) = -\cos(\text{[illegible]}) = -\cos(-\cancel{2\pi}+\frac{\pi}{4}-\alpha)$

$-(\frac{\sqrt{2}}{2}\times\frac{-\sqrt{98}}{10}+\frac{\sqrt{2}}{2}\times\frac{\sqrt{2}}{10}) = \frac{12}{20} = 0.6$

۳-

$(\sin\alpha+\cos\alpha)^۲=۱+۲\sin\alpha\cos\alpha$

$=۱+۲(-\frac{۱}{۳})=\frac{۱}{۳}$

$۳\pi<۴x<۴\pi \rightarrow \frac{۳}{۴}\pi<x<\pi \xrightarrow{\sin x+\cos x<0} \frac{-\sqrt{۳}}{۳}$

$\sin^۳x+\cos^۳x=(\sin x+\cos x)(\underbrace{\sin^۲x+\cos^۲x-\sin x\cos x}_{۱-(-\frac{۱}{۳})=\frac{۴}{۳}})=-\frac{\sqrt{۳}}{۳}(\frac{۴}{۳})$

$\longrightarrow \frac{۱}{\sin^۳x+\cos^۳x}=\boxed{\frac{-۳}{۴}\sqrt{۳}}$