نام و نام خانوادگی: سایا حاوری

Subject
Year: Month: Date:

NOTE BOOK

۱۸

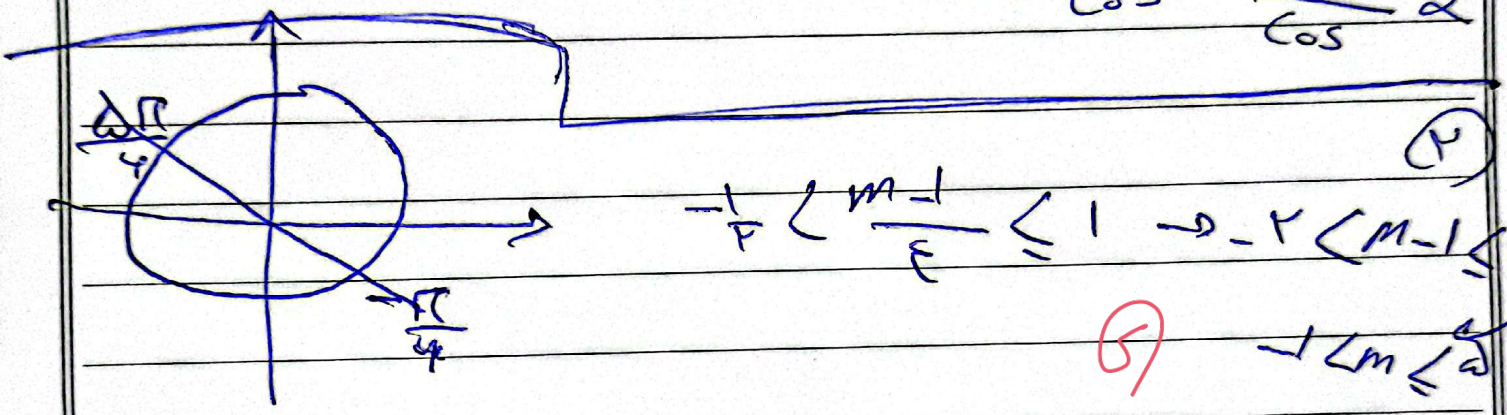
ناصیه

(۱) جام

$\cot\alpha = \frac{-\cos\alpha}{|\sin\alpha|}$ $\frac{\cos\alpha}{\sin\alpha} = \frac{-\cos\alpha}{|\sin\alpha|}$

$-\sin\alpha = |\sin\alpha|$ ۱ نمره

$\frac{1}{|\cos|} = \frac{\sin}{\cos}, \frac{1-\sin}{|\cos|} \rightarrow -\frac{1}{\cos} - \frac{\sin}{\cos}, \sin^{-1}\frac{}{\cos}\alpha$



(۲)

$-\frac{1}{۲} < \frac{m-1}{۴} \leq 1 \rightarrow -۲ < m-1 \leq ۴$

$-۱ < m \leq ۵$

(۳)

$\tan^۲\alpha + \cot^۲\alpha = -۲ \Rightarrow \frac{\sin\alpha}{\cos\alpha} + \frac{\cos\alpha}{\sin\alpha}^۲ = ۲$

$\Rightarrow \frac{\sin^۲\alpha + \cos^۲\alpha}{\sin\alpha\cos\alpha} = -۲ \Rightarrow \sin\alpha\cos\alpha = -\frac{۱}{۲}$

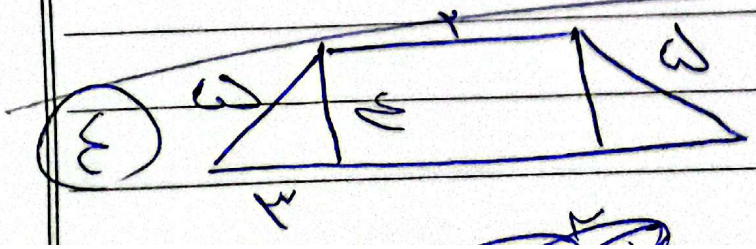
$\Rightarrow (\sin\alpha+\cos\alpha)^۲ = ۱ - ۱ = ۰$

$\sin\alpha + \cos\alpha = ۰$

$\frac{۱}{\cos^۴\alpha + \sin^۴\alpha} = \frac{۱}{(\sin^۲\alpha+\cos^۲\alpha)^۲ - ۲\sin^۲\alpha\cos^۲\alpha} = \frac{۱}{۱ - \frac{۱}{۲}\sin^۲۲\alpha} = \frac{۲}{۱}$

$\frac{۱}{\frac{۴}{۴}(\sin\alpha+\cos\alpha)} = \frac{۱}{\frac{۴}{۴}\times\frac{۱}{\sqrt{۲}}} = \frac{۲\sqrt{۲}}{۴} = \frac{\sqrt{۲}}{۲} = ۰.۷۰۷$

(۴)



$\frac{۲+۸}{۲} \times ۴ = ۲۰$

(۴

$\cos 135 = \cos(180-45) = -\cos 45 = -\frac{\sqrt{2}}{2}$

(۲

$A = \sqrt{3} \times \left(-\frac{\sqrt{3}}{2}\right)(-\cos 27) + \sqrt{2} \times \frac{\sqrt{2}}{2}(-\cos 27)$

$A = \frac{3}{2}\cos 27 + \cos 27 = \left(\frac{3}{2}+1\right)\cos 27 = \frac{5}{2}\cos 27$

$\cos 153 = \cos(180-27) = -\cos 27 \quad \frac{5}{2} = 2/5$

(۵ حاصل $\tan(285)\tan(-165)\sin(1095)\cos(255)$

$270+15$

$-180+15$

$-\tan(180-15)$

$\frac{1080+15}{180}$ (۲

$-\cot 15° \tan 15° + \sin^2 15 =$

$-1+\sin^2 15° = -\cos^2 15 \rightarrow \boxed{K=-1}$

(۷)

$\frac{\pi}{۳۶} = ۵^\circ \longrightarrow ۱۶\cos^۲(۱۵)\cos^۲(۳۰)\cos^۲(۶۰)\cos^۲(۱۲۰)$

$\frac{۸}{۱۰} \times \frac{۳}{۴} = ۰/۶$

$۱۶ \times \bigcirc \times \frac{۳}{۴} \times \frac{۱}{۴} \times \frac{۱}{۴} \longrightarrow \bigcirc \times \frac{۳}{۴} = \frac{۲+\sqrt{۳}}{۴} \times$

۹

$\boxed{\frac{۶+۳\sqrt{۳}}{۱۶}}$

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(۸)

$۱ - \sin x = ۴ + \sin x \longrightarrow -۳ = ۵\sin \rightarrow \sin x = -\frac{۳}{۵}$

$\cos x = -\frac{۴}{۵}$ $\tan x = \frac{۳}{۴}$

۹

$\tan ۲\alpha = \frac{۲\tan\alpha}{۱-\tan^۲\alpha}$ $\tan x = \frac{۲\tan\frac{x}{۲}}{۱-\tan^۲\frac{x}{۲}}$

$۳\tan^۲(\frac{x}{۲}) + ۸\tan(\frac{x}{۲}) - ۳ = ۰$ $۸\tan\frac{x}{۲} = ۳ - ۳\tan^۲(\frac{x}{۲})$

$t^۲ + ۸t - ۳ = ۰ \rightarrow t^۲ + ۸t - ۹ = ۰ \rightarrow t = ۱$

$t = -۹ = -\frac{۹}{۳} = -۳$

$\tan\frac{x}{۲} = \cancel{۱}, (-۳) \Rightarrow ۱۸۰ < x < ۲۷۰ \rightarrow ۹۰ < \frac{x}{۲} < ۱۳۵$ (۹)

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

(4)

$$\frac{\sin^2\theta + 1 - \cos^2\theta}{\sin\theta - \sin\theta\cos\theta}$$

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

$$\Rightarrow \frac{2\sin\theta}{1-\cos\theta} = 2\,\frac{\sin\theta}{1-\cos\theta}$$

$$\frac{1-\cos^2\alpha}{2} = \sin^2\alpha \Rightarrow \frac{2}{1-\cos\frac{2\alpha}{\theta}} = \frac{1}{\sin^2\frac{\alpha}{\theta/2}}$$

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

$$\Rightarrow \text{R.H.S}$$

Baharan

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$\cos(\alpha+\beta) = \cos\alpha\cos\beta - \sin\alpha\sin\beta$ (10)

$\cos\left(\frac{11\pi}{2}+\alpha\right) = \cos\frac{11\pi}{2}\cos\alpha - \sin\frac{11\pi}{2}\sin\alpha$

$\sin\alpha + \cos^2\alpha = 1 \Rightarrow \frac{2}{100} + \cos^2\alpha = 1$ (1)

$\cos^2\alpha = \frac{98}{100} \rightarrow \cos\alpha = -\frac{\sqrt{98}}{10}$

$-\frac{\sqrt{2}}{2} \times \frac{\sqrt{98}}{10} - \frac{\sqrt{2}}{10} \times \frac{\sqrt{2}}{2} = -\frac{\sqrt{196}}{20} - \frac{\sqrt{2}}{20} = -\frac{14}{20} - \frac{2}{20}$

$-\frac{14}{20} = -\frac{7}{10}$

$\cos\left(\frac{11\pi}{12}+\alpha\right) = -\left(\cos\alpha\cos\frac{\pi}{12} + \sin\alpha\sin\frac{\pi}{12}\right)$

$\rightarrow -\frac{\sqrt{2}}{2}(\cos\alpha + \sin\alpha)$ $\quad \cos\alpha = \frac{-\sqrt{98}}{10}$

$\rightarrow -\frac{\sqrt{2}}{2}\left(\frac{-\sqrt{98}}{10} + \frac{\sqrt{2}}{10}\right) = \frac{7}{5}$

1) $\cot\alpha = \frac{\cos\alpha}{\sin\alpha} = \frac{\cos\alpha}{|\sin\alpha|} \rightarrow |\sin\alpha| = \sin\alpha \rightarrow \sin\alpha > 0$

$\frac{1}{\sqrt{\cos^2\alpha}} - \frac{1}{\cot\alpha} = \frac{1-\sin\alpha}{|\cos\alpha|} \rightarrow \cos\alpha = |\cos\alpha| \rightarrow \cos > 0$

} نصف اول