موضوع: مهدی کاظمی یازدهم بسرB

تاریخ: / /

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

$\cos\alpha > 0$

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

$\frac{\sin\alpha}{\cos\alpha} > 0 \rightarrow \sin\alpha > 0$

$\cos\alpha > 0$

ناحیه اول

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②

$-\frac{\pi}{12} < x < \frac{9\pi}{12}$ $\quad \sin 3x = \frac{m-1}{4}$

$-\frac{\pi}{4} < 3x < \frac{9\pi}{4}$ $\quad -\frac{1}{2} < \sin 3x \leq 1 \rightarrow -\frac{1}{2} < \frac{m-1}{4} \leq 1$

$-2 < m-1 < 4$

$-1 < m < 5 \rightarrow (-1, 5)$ $\quad -2 < m-1$ $\quad -1 < m$ $\quad m-1 \leq 4$ $\quad m \leq 5$

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③

$\tan x + \cot x = -2$ $\quad 2\pi < 3x < 4\pi$

$\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} \rightarrow \frac{1}{\sin\cos x} = -2 \rightarrow \sin x \cos x = -\frac{1}{2}$

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

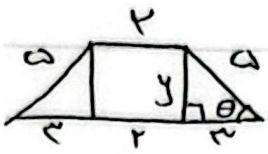
$\sin x + \cos x = t + 2\sin\cos x = \frac{1}{2} \rightarrow \frac{2\pi}{3} < x < \pi$

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

$\rightarrow \frac{1}{\frac{3}{2} \cdot t} \rightarrow \frac{2}{3t} \rightarrow \frac{2}{3t} = -\sqrt{2} \rightarrow -\frac{2\sqrt{2}}{3}$

دانوین

موضوع: تاریخ: / /



$\cos\theta = 0.6 = \frac{m}{5} \rightarrow m = 3$ (۴)

$\sin\theta = 0.8 = \frac{y}{5} \rightarrow y = 4$

$\sin^2 m + \cos^2 m = 1 \rightarrow \sin m = 0.8$

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

$\tan(240^\circ)\tan(-140^\circ) - \sin(1590^\circ)\cos(2250^\circ) =$ (۵)

$\tan\left(\frac{3\pi}{4} + 10\right)\tan(-\pi + 10) - \sin(4\pi + 10)\cos\left(\frac{3\pi}{2} - 10\right) =$

$-\cot 10 \tan 10 - (\sin 10 - \sin 10) + \sin^2 10 = -\cos^2 10$

$= -1$

$A = \sqrt{3}\cos(210^\circ)\sin(150^\circ) - \sqrt{2}\sin(135^\circ)\cos(180^\circ)$ (۶)

$-\frac{\sqrt{3}}{2}$ $-\cos 30$ $\frac{\sqrt{2}}{2}$ $\cos(\pi - 45)$

$= \frac{3}{2}$

$f(m) = 16\cos^2(3m)\cos^2(6m)\cos^2(12m)$ (۷)

$f\left(\frac{\pi}{24}\right)$

$\sin^2(3m) \rightarrow 16(\cos^2 m \sin^2 m)^2 \rightarrow \cos^2(12m)\cos^2(24m)$

$\frac{\sin m}{2}$ $\sin^2(2m)$ $\rightarrow 4\sin^2 m \cos^2 m = \sin^2(2m)$

$\frac{\frac{1}{4}\sin^2(4m)\cos^2(24m)}{\sin^2(2m)} \rightarrow \frac{1}{16}\frac{\sin^2(48m)}{\sin^2(2m)}$

$\frac{1}{16} \times \frac{3}{(\sqrt{6}-\sqrt{2})^2} \rightarrow \frac{3}{16(\sqrt{6}-\sqrt{2})^2}$

دانوین

موضوع: مثلثات کاظمی تاریخ: / /

(۸)

$\frac{1-\sin m}{1+\sin m} = \frac{۱}{۴}$ ربع سوم ← m

$۴+۴\sin m = ۱-\sin m - ۵\sin m \Rightarrow -۳ = -۳\sin m \Rightarrow \sin m = ۱$

$\cos m = -\frac{۴}{۵}$

$\tan m = \frac{۳}{۴}$

$\tan m = \frac{۲\tan\frac{m}{۲}}{۱-\tan^۲\frac{m}{۲}} \rightarrow \frac{۳}{۴} = \frac{۲t}{۱-t^۲} \rightarrow ۳t^۲+۸t-۳=۰$

$(۳t-۱)(t+۳)=۰$

$t = \frac{۱}{۳}$ $\quad t = -۳$

$\frac{\pi}{۲} < m < \pi \Rightarrow \frac{\pi}{۴} < \frac{m}{۲} < \frac{\pi}{۲}$

$\tan\frac{m}{۲} > ۱$ ← ۴۵°

(ب)

(۹)

$K\cot\frac{\theta}{۲}$ ← ساده $\frac{\sin\theta}{۱-\cos\theta} + \frac{۱+\cos\theta}{\sin\theta}$

$K=?$

$\frac{\sin^۲\theta + ۱-\cos^۲\theta}{\sin\theta - \cos\theta\sin\theta} \rightarrow \frac{۲\sin^۲\theta}{\sin\theta(۱-\cos\theta)} \rightarrow \frac{۲\sin\theta}{۱-\cos\theta}$

$\frac{۲(۲\sin\frac{\theta}{۲}\cos\frac{\theta}{۲})}{۱-(۱-۲\sin^۲\frac{\theta}{۲})} \rightarrow ۲\cot\frac{\theta}{۲} \rightarrow K=۲$

(۱۰)

α ← ربع اول $\quad \sin\alpha = \frac{\sqrt{۱۱}}{۱۵}$

$\cos(\frac{۱۱\pi}{۴}+\alpha) \Rightarrow \cos(\frac{۳\pi}{۴}+\alpha) \rightarrow -\frac{\sqrt{۲}}{۲}\times\frac{-۱\sqrt{۱۱}}{۱۵}$

$-\frac{\sqrt{۲}}{۱۵}\times\sqrt{\frac{۱}{۲}} \rightarrow$ (ب) جواب