Year: A یازدهم دختر Month: Day: ( ) غزل عباسی‌فر ۱۸٫۵ Subject: ۲۸ تکلیف شماره

(۱)

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

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

$\Rightarrow \sin\alpha > 0$ ربع اول

(۲)

$\frac{-\pi}{12} < x < \frac{5\pi}{12} \xrightarrow{\times 2} \frac{-\pi}{6} < 2x < \frac{5\pi}{6}$

$\sin\frac{-\pi}{6} < \sin 2x < \sin\frac{5\pi}{6} \Rightarrow \frac{-1}{2} < \sin 2x \leq 1$

$\to \sin\frac{\pi}{2} = 1 \quad \sin\frac{5\pi}{6} = \frac{1}{2} \quad \frac{-1}{2} < \frac{m-1}{4} \leq 1 \Rightarrow$

$-1 < m \leq 5$

(۳)

$\frac{\cancel{\sin^2x+\cos^2x}^{\,1}}{\sin x\cdot\cos x} = -3 \Rightarrow \sin x\cdot\cos x = \frac{-1}{3}$

$\frac{3\pi}{4} < x < \pi \Rightarrow \sin x > 0 \quad \cos x < 0$

$, \ |\cos x| > \sin x \Rightarrow \sin x + \cos x < 0$

$\sin^3x + \cos^3x = (\sin x + \overset{(1)}{\cos x})(\sin^2x + \cos^2x - \sin x\cos x) = -\frac{\sqrt{3}}{3} \times \underset{\text{معکوس}}{\frac{4}{3}} \Rightarrow \frac{-9}{4\sqrt{3}} = \frac{-9\sqrt{3}}{12} = \boxed{\frac{-3\sqrt{3}}{4}}$

(۱)

$(\sin x + \cos x)^2 = \sin^2x + \cos^2x - 2\sin x\cos x = 1 - \frac{2}{3} = \frac{1}{4}$

$\sin x + \cos x = -\frac{\sqrt{3}}{3}$

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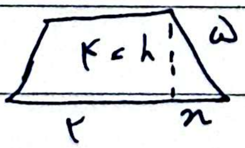
θ زاویه حاده



$\cos A = \frac{6}{10} = \frac{x}{5} \quad x = 3$

قاعده $= 2 + 2x = 8 \quad S = \frac{(2+8)}{2} \times 4 = \boxed{20}$

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$\tan(285) = \tan(270+15) = -\cot 15$ / $\tan(-165) = -\tan(180-15) = \tan 15$ / $-\sin(1095) = -\sin(6 \times 180 + 15) = -\sin 15$ / $\cos(285) = \cos(270+15) = -\sin 15$

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

$\cos(27^\circ) = x$ $\qquad k = -1$

1,5

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$\cos(210) = \cos(180+30) = -\cos(30) = -\frac{\sqrt{3}}{2}$

$\sin(243) = \sin(270-27) = -\cos(27) = x$

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

$\cos(153) = \cos(180-27) = -\cos 27 = -x$

$k = \frac{5}{2}$

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حاصل عبارت: $\sqrt{3} \times \frac{-\sqrt{3}}{2} \times (-x) - \sqrt{2} \times \frac{\sqrt{2}}{2} \times (-x) = \frac{3}{2}x + x = \frac{3}{2} \times \cos(27) + \frac{2\cos(27)}{2} = \frac{5}{2}\cos 27$

$x = \frac{\pi}{36}$ $\cos \Rightarrow$ (شکل درجه)

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$16 \times C^2\left(\frac{\pi}{12}\right) \times C^2\left(\frac{\pi}{6}\right) \times C^2\left(\frac{\pi}{3}\right) \times C^2\left(\frac{2\pi}{3}\right)$

$C\left(\frac{\pi}{12}\right) \Rightarrow \cos 2\alpha = \frac{1-\tan^2\alpha}{1+\tan^2\alpha} \Rightarrow \alpha = \frac{\pi}{12}$

$\Rightarrow \cos 2\alpha = \frac{1+\cos 4\alpha}{2}$ $\quad 1+\tan^2\alpha \rightarrow$ $\quad \cos 2\alpha = 2\cos^2\alpha - 1$

$\Rightarrow \cos\frac{\pi}{6} = 2 \times \cos^2\frac{\pi}{12} - 1 \longrightarrow \frac{\sqrt{3}}{2} = 2\cos^2\alpha - 1$

$\left(\frac{\sqrt{3}}{2} + \frac{2}{2}\right) \times \frac{1}{2} \Rightarrow \cos^2\alpha = 2 + \sqrt{3}$

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حاصل عبارت : $\cancel{16} \times \frac{2+\sqrt{3}}{4} \times \frac{3}{\cancel{4}} \times \frac{1}{\cancel{4}} \times \frac{1}{4} =$

$\boxed{\frac{6+3\sqrt{3}}{\cancel{4}\ 16}}$

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ربع سوم: $\cos x < 0 \quad \sin x < 0$ $\quad \dfrac{1-\sin x}{1+\sin x} = 4 \Longrightarrow \sin x = \dfrac{-3}{5}$

$$\sin x = \frac{2\tan\frac{x}{2}}{1+\tan^2\frac{x}{2}} = \frac{-3}{5} \qquad \tan\frac{x}{2} = m \qquad \frac{2m}{1+m^2} = \frac{-3}{5}$$

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$$3m^2 + 10m + 3 = 0 \qquad \left(m+\frac{1}{3}\right)(m+3) = 0 \qquad \boxed{m=-3}$$ قابل قبول

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

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

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$$\frac{\sin\theta}{1+\cos\theta} = \tan\frac{\theta}{2} \Longrightarrow \frac{1+\cos\theta}{\sin\theta} = \cot\frac{\theta}{2}$$

$$2\cot\frac{\theta}{2} = k\cot\frac{\theta}{2} \longrightarrow k=2$$

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$$\sin\alpha > 0 \quad \cos\alpha < 0 \quad \sin\alpha = \frac{\sqrt{2}}{10} \quad \cos\alpha = -\frac{\sqrt{98}}{10}$$

$$\sin^2\alpha + \cos^2\alpha = 1 \Longrightarrow \frac{2}{100} + x^2 = 1 \longrightarrow x \Rightarrow$$

1,5

$$\cos\left(\frac{11\pi}{4}+\alpha\right) = \cos\left(3\pi - \frac{\pi}{4} + \alpha\right) = \cos\left(3\pi - \left(\frac{\pi}{4}-\alpha\right)\right) = -\cos\left(\frac{\pi}{4}-\alpha\right) = -\left(\cos\frac{\pi}{4}\cos\alpha + \sin\frac{\pi}{4}\sin\alpha\right) = \frac{2-\sqrt{196}}{20} = \boxed{\frac{+3}{5}}$$

$$\cos\left(\frac{11\pi}{4}+\alpha\right) = -\left(\cos\alpha\cos\frac{\pi}{4} + \sin\alpha\sin\frac{\pi}{4}\right)$$

$$\rightarrow \frac{-\sqrt{2}}{2}(\cos\alpha + \sin\alpha) \qquad \cos\alpha = \frac{-7\sqrt{2}}{10}$$

$$\hookrightarrow \frac{-\sqrt{2}}{2}\left(\frac{-7\sqrt{2}}{10} + \frac{\sqrt{2}}{10}\right) = \frac{3}{5}$$