عرفان حقیقی یازدهم پیش A

۱)

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

$$\Rightarrow \frac{1}{|\cos\alpha|} - \tan\alpha = \frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} = \frac{1-\sin\alpha}{|\cos\alpha|}$$

$$\Rightarrow \cos\alpha > 0$$

$$-\frac{\cos\alpha}{\sqrt{1-\cos^2\alpha}} = -\frac{\cos\alpha}{\sqrt{\sin^2\alpha}} = -\frac{\cos\alpha}{|\sin\alpha|} \Rightarrow$$ چون این کسر برابر

$\cot\alpha$ است پس $\sin\alpha < 0 \Leftarrow$ α در ناحیه چهارم است

۲)

$$\frac{-\pi}{12} < x < \frac{3\pi}{12} \Rightarrow \frac{-\pi}{6} < 2m < \frac{3\pi}{6}$$

$$\Rightarrow -\frac{1}{2} < \sin 2m \leq 1 \Rightarrow -\frac{1}{2} < \frac{m-1}{2} \leq 1 \Rightarrow 2(m-1 \leq$$

$$\Rightarrow -1 < m \leq 3$$

date: subject:

$$\frac{\sin x}{\cos x} + \frac{\cos x}{\sin x} \Rightarrow \frac{\sin^2 x + \cos^2 x}{\sin x \cos x} = -3 \Rightarrow$$ (3

$$\sin x \cos x = -\frac{1}{3}$$

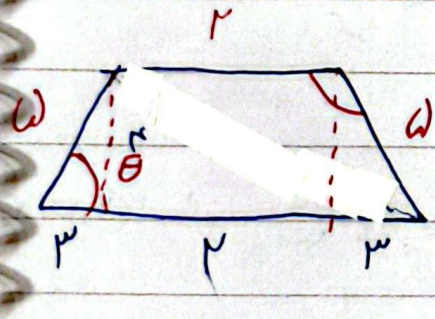
$$(\sin x + \cos x)^2 = \sin^2 x + \cos^2 x + 2\sin x \cos x = \frac{1}{3}$$

$$\Rightarrow \sin x \cos x = \pm \frac{\sqrt{3}}{3}$$

$$3\pi < 2x < 4\pi \Rightarrow \frac{3}{2}\pi < x < 2\pi \Rightarrow \sin x + \cos x = -\frac{\sqrt{3}}{3}$$

$$\Rightarrow \sin^3 x + \cos^3 x = -\frac{\sqrt{3}}{3} \times \frac{2}{3} = -\frac{2}{9}\sqrt{3}$$

$$\Rightarrow \frac{1}{\sin^3 x + \cos^3 x} = \frac{1}{-\frac{2}{9}\sqrt{3}} \Rightarrow -\frac{3\sqrt{3}}{2}$$



(4

$$\because \sin\theta = \frac{x}{3} \Rightarrow x = 3$$

$$S = \frac{(8+2)}{2} \times 2 = 10$$

MR-RAD

date: subject:

(ω

$$\tan(240^\circ + 2\omega)\tan(120^\circ + 2\omega) - \sin(2\omega - 30^\circ)\cos(210^\circ + 2\omega)$$

$$\frac{\tan 240^\circ + \tan 2\omega}{1 - \tan 240^\circ \tan 2\omega} \times \frac{\tan 120^\circ + \tan 2\omega}{1 - \tan 120^\circ \tan 2\omega}$$

(ج

$$= \sqrt{3}\left(-\frac{\sqrt{3}}{2}\right) + \sin(270^\circ - 2\omega) - \sqrt{2}\left(-\frac{\sqrt{2}}{2}\right)\cos(180^\circ - 2\omega)$$

$$\Rightarrow \frac{3\cos 2\omega}{2} + \cos 2\omega = \frac{5\cos 2\omega}{2} \Rightarrow 2\cos 2\omega$$

۲ برابر $\cos 2\omega$ است

date: subject:

(۷

$$16\cos^2\left(\frac{\pi}{11}\right)\cos^2\left(\frac{2\pi}{11}\right)\cos^2\left(\frac{4\pi}{11}\right)\cos^2\left(\frac{8\pi}{11}\right)$$

$$\Rightarrow 16\left(\frac{1+\cos\frac{\pi}{6}}{2}\right)\left(\frac{\sqrt{3}}{3}\right)^2\left(\frac{1}{2}\right)\left(-\frac{1}{2}\right)^2 = \frac{6+3\sqrt{3}}{16}$$

(۸

$$1-\sin m = 6+6\sin m \Rightarrow \sin m = -\frac{5}{7}$$

$$\sin m = \frac{2\tan\frac{m}{2}}{1+\tan^2\frac{m}{2}} \xrightarrow{\tan\frac{m}{2}=t} -\frac{5}{7} = \frac{2t}{1+t^2}$$

$$\Rightarrow 5t^2+10t+5=0 \Rightarrow \begin{cases} t_1 = -\frac{1}{5} & \text{درمعدوده نیست} \\ t_2 = -5 \checkmark \end{cases}$$

(۹

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

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

جمع $\Rightarrow 2\cot\frac{\theta}{2} \Rightarrow k=2$

MR-RAD

date: subject:

(1.

$$\cos^2\left(\frac{11\pi}{6}+\alpha\right) = \frac{1+\cos\left(\frac{11\pi}{3}+2\alpha\right)}{2}$$

$$\Rightarrow \frac{1+\sin(2\alpha)}{2} \Rightarrow \frac{1+\frac{\sqrt{2}}{3}}{2} \Rightarrow \pm\sqrt{\frac{1+\frac{\sqrt{2}}{3}}{2}}$$