19,25

نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره 28 کلاس ..... یازدهم ریاضی B

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

$\hookrightarrow \frac{\cos\alpha}{\sin\alpha} \cdot \frac{\cos\alpha}{|\sin\alpha|} \rightarrow \sin\alpha > 0 \;/\; \frac{1}{|\cos\alpha|} - \frac{\sin\alpha}{\cos\alpha} \cdot \frac{1}{|\cos\alpha|} = \frac{\sin\alpha}{|\cos\alpha|}$

$\rightarrow \cos\alpha > 0$ ناحیه اول ۲

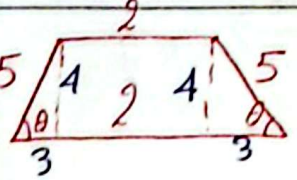
$-\frac{\pi}{12} < x < \frac{5\pi}{12} \xrightarrow{\times 2} -\frac{\pi}{6} < 2x < \frac{5\pi}{6} \xrightarrow{\sin} -\frac{1}{2} < \frac{m-1}{4} \leq 1$ ۲

$\rightarrow -2 < m-1 \leq 4 \rightarrow -1 < m \leq 5 \rightarrow m \in (-1, 5]$ ✓

$\tan x + \cot x = -3 \rightarrow \sin x \cdot \cos x = -\frac{1}{3} \rightarrow \sin x + \cos x = \frac{\sqrt{3}}{3}$ ۱,۵

$\sin^3 x + \cos^3 x = (\sin x + \cos x)(\sin^2 x + \cos^2 x - \sin x \cdot \cos x)$ ۳

$= \frac{4\sqrt{3}}{9} \rightarrow \frac{1}{\frac{4\sqrt{3}}{9}} = \frac{9}{4\sqrt{3}} = \frac{3\sqrt{3}}{4}$



$\rightarrow \cos\theta = 0/6 \rightarrow \sin\theta = 0/8$ ۴

$\rightarrow \frac{(2+8)4}{2} = 20$ ✓

$\tan(270+15) = -\tan(180-15) - \sin(1095^\circ) \cdot \cos(255)$

$(-\cot(15^\circ) \tan(15^\circ)) - (\sin(15) \cdot -\sin(15^\circ))$ ۵

$-1 + \sin^2 15 - \cos^2 15 \rightarrow K = -1$ ✓

$A = \sqrt{3}\cos 210^\circ \cdot \sin(270^\circ - 23^\circ) - \sqrt{2}\sin 135^\circ \cdot \cos(180^\circ - 27^\circ)$

$\rightarrow \left(\sqrt{3} \times -\frac{\sqrt{3}}{2} \times -\cos 27^\circ\right) - \left(\sqrt{2} \times \frac{\sqrt{2}}{2} \times -\cos 27^\circ\right)$ ۲ ۶

$\frac{3}{2}\cos 27^\circ + \cos 27^\circ = \frac{5}{2}\cos 27^\circ \rightarrow \boxed{\frac{5}{2}}$ ✓

$f(x) = 16\cos^2(3x)\cdot\cos^2(6x)\cdot\cos^2(12x)\cdot\cos^2(24x)$ ۲

$x = \frac{\pi}{36} \rightarrow \cos 15^\circ = \cos(45 - 30) = \cos 45^\circ \cdot \cos 30^\circ + \sin 45 \cdot \sin 30^\circ$

$= \frac{\sqrt{6}+\sqrt{2}}{4} \rightarrow 16 \times \cos^2 15^\circ \times \cos^2 30 \times \cos^2 60 \times \cos^2 120^\circ$ ۷

$\rightarrow 16 \times \frac{2+\sqrt{3}}{4} \times \frac{3}{4} \times \frac{1}{4} \times \frac{1}{4} = \frac{6+3\sqrt{3}}{16}$ ✓

$x \rightarrow$ ربع ۳ $/ \frac{1-\sin x}{1+\sin x} = 4 \rightarrow 4 + 4\sin x = 1 - \sin x \rightarrow$ ۲

$\sin x = -\frac{3}{5} \rightarrow \cos x = -\frac{4}{5} \rightarrow \tan x = \frac{3}{4}$ ۸

$\rightarrow \tan\frac{x}{2} = \tan\left(x - \frac{x}{2}\right) = \frac{\tan x - \tan\frac{x}{2}}{1 + \tan x \cdot \frac{x}{2}} \rightarrow \tan\frac{x}{2} = t \quad \frac{\frac{3}{4} - t}{1 + \frac{3t}{4}} = t$

$\longrightarrow t = -3, \frac{1}{3} \rightarrow \boxed{-3} = \tan\frac{x}{2}$ ✓

$\frac{\sin\theta}{1-\cos\theta} + \frac{1+\cos\theta}{\sin\theta} = \frac{\sin^2\theta + (1-\cos^2\theta)}{\sin\theta(1-\cos\theta)} = \frac{2\sin\theta}{1-\cos\theta} = \frac{2\sin\theta}{2\sin^2\frac{\theta}{2}}$ ۱/۷۵

$\rightarrow \frac{2 \cdot 2\sin\frac{\theta}{2}\cdot\cos\frac{\theta}{2}}{2\sin^2\frac{\theta}{2}} = \boxed{\cot\frac{\theta}{2}} \rightarrow K = 1$ $\boxed{K = ۲}$ ۹

دقت!

$\sin\alpha = \frac{\sqrt{2}}{10} \rightarrow \alpha \rightarrow$ ربع ۲ $\rightarrow \cos\alpha = \sqrt{1 - \frac{2}{100}} = \frac{\sqrt{98}}{10} \xrightarrow{\text{ربع ۲}} -\frac{\sqrt{98}}{10}$ ۲

$\rightarrow \cos\left(\frac{11\pi}{4} + \alpha\right) = \cos\left(\frac{3\pi}{4} + \alpha\right) = \cos\frac{3\pi}{4}\cdot\cos\alpha - \sin\frac{3\pi}{4}\cdot\sin\alpha$ ۱۰

$\rightarrow \left(-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{98}}{10}\right) - \left(\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10}\right) = \frac{14}{20} - \frac{2}{20} = \frac{12}{20} = 0/6$ ✓

۳-

$$(\sin\alpha+\cos\alpha)^2 = 1+2\sin\alpha\cos\alpha$$
$$= 1+2\left(\frac{-1}{3}\right) = \frac{1}{3}$$

$$2\pi < 4\alpha < 5\pi \rightarrow \frac{3}{4}\pi < \alpha < \pi \xrightarrow{\sin\alpha+\cos\alpha<0} \frac{-\sqrt{3}}{3}$$

$$\sin^3\alpha+\cos^3\alpha = (\sin\alpha+\cos\alpha)(\sin^2\alpha+\cos^2\alpha-\sin\alpha\cos\alpha) = \frac{-\sqrt{3}}{3}\left(\frac{4}{3}\right)$$

$$\hookrightarrow 1-\left(\frac{-1}{3}\right) = \frac{4}{3}$$

$$\rightarrow \frac{1}{\sin^3\alpha+\cos^3\alpha} = \boxed{\frac{-3}{4}\sqrt{3}}$$

۹-

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

$$\frac{2\sin\theta}{1-\cos\theta} = \frac{2\times 2\sin\frac{\theta}{2}\cos\frac{\theta}{2}}{2\sin^2\frac{\theta}{2}} = 2\cot\frac{\theta}{2} \rightarrow \boxed{K=2}$$