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

$$\frac{1}{\tan \frac{2x}{2}} \qquad \frac{1}{\cot \frac{2x}{2}}$$

$$k \cot \frac{x}{2} \qquad k?$$

$$\times \cot \frac{x}{2} \Rightarrow \frac{\times}{-}$$

$$\sin\alpha = \frac{\sqrt{2}}{10}$$

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

$$\frac{\times\pi}{4} = \alpha$$

$$-\frac{\sqrt{2}}{2} \times -\frac{\sqrt{2}\times 7}{10} \qquad \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{10}$$

$$\frac{7}{10} - \frac{1}{10} = \frac{6}{10} = \frac{3}{5} \qquad \frac{-1}{10}$$

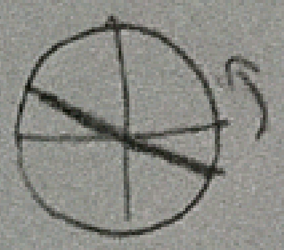
نوران امامی

$\cot\alpha = \frac{\cos\alpha}{\sqrt{1-\cos^2\alpha}}$ $\qquad \frac{1}{\sqrt{\cos^2\alpha}} - \frac{1}{\cot\alpha} = \frac{1-\sin\alpha}{\underbrace{|\cos\alpha|}} \geq 0$

$\cot\alpha = \frac{\cos\alpha}{\underbrace{|\sin\alpha|}_{+}}$ ① $\qquad \frac{1}{\underbrace{|\cos\alpha|}} - \frac{\tan\alpha}{\frac{\sin\alpha}{\cos\alpha}} \Rightarrow \frac{-1}{\cos\alpha}$ شده ① $\cos\alpha > 0$

$\hookrightarrow \frac{\cos\alpha}{\sin\alpha} \Rightarrow$ هم‌علامت $\Rightarrow$ ناحیه ۱

$\sin 2x = \frac{m-1}{4}$ $\qquad -\frac{\pi}{12} < x < \frac{5\pi}{12} \Rightarrow -\frac{\pi}{6} < 2x < \frac{5\pi}{6}$

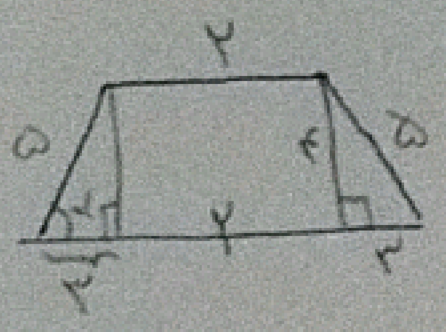


$-\frac{1}{2} < \frac{m-1}{4} \leq 1 \Rightarrow -2 < m-1 \leq 4 \Rightarrow -1 < m \leq 5$

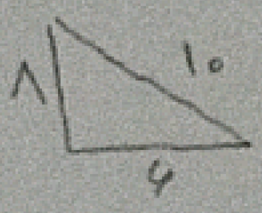
$\tan x + \cot x = -3$ $\qquad 3\pi < 4x < 4\pi \Rightarrow \frac{3}{4}\pi < x < \pi$ ناحیه دوم

$\frac{1}{\sin^2 x \cdot \cos^2 x}$ $\qquad \frac{2}{\sin 2x} = -3 \Rightarrow \frac{1}{\underbrace{\sin x\cos x}_{-\frac{2}{3}}}$ $\qquad \frac{\sin 2x+1}{\frac{1}{3}} = (\sin x+\cos x)^2$

$(\underbrace{\sin x+\cos x}_{\frac{-1}{\sqrt{3}}})(\underbrace{\cos^2 x+\sin^2 x}_{1} - \underbrace{\sin x\cos x}_{-\frac{2}{3}})$ $\qquad \frac{4}{3} \times -\frac{1}{\sqrt{3}} = -\frac{4}{9}\sqrt{3}$



$\cos\alpha = 0.6$



$\left(\frac{2+2+3+3}{2}\right) \times 4 = 20$

$k\cos^2 15$ $\qquad \tan(285)\tan(-165) - \sin(1095)\cos(255)$

$\tan(\frac{3\pi}{2}+15)\tan(-\pi+15) \ominus (\sin(6\pi+15)\cos(\frac{3\pi}{2}-15))$

$\underbrace{-\cot(15)\tan(15)}_{-1}$ $\qquad +\sin(15)\sin(15)$

$-1+\sin^2 15 \Rightarrow -\cos^2 15 \xrightarrow{-1} k=-1$

$\frac{A}{\cos(27)} = \frac{5}{2}$ $\qquad A = \sqrt{3}\cos(210)\sin(243) - \sqrt{2}\,\underbrace{\sin(135)}_{\frac{\sqrt{2}}{2}}\cos(153)$

$-\frac{\sqrt{3}}{2}\quad \sin(\frac{3\pi}{2}-27) \qquad \cos(\pi-27)$

$\frac{-3}{2}\quad -\cos(27) \qquad -1$

$\frac{3}{2}\cos(27) \qquad +\cos(27)$

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

$f(\frac{\pi}{36})$ ~~16~~ $\qquad \underbrace{\cos^2\frac{\pi}{6}}_{\frac{3}{4}} \quad \underbrace{\cos^2(\frac{\pi}{3})}_{\frac{1}{4}} \quad \underbrace{\cos^2(\frac{2\pi}{3})}_{\frac{1}{4}} \qquad \frac{3}{4}\cos^2(\frac{\pi}{12})$

$\cos^2 15 = \frac{1+\cos 30}{2}$ $\qquad \frac{\sqrt{3}+2}{4} \times \frac{3}{4} = \frac{3\sqrt{3}+6}{16}$

x ربع سوم

$\frac{1-\sin x}{1+\sin x} = 4$ $\qquad \Rightarrow 5\sin x = -3 \Rightarrow \sin x = -\frac{3}{5}$

مقدار صحیح $\tan\frac{x}{2}$

$\frac{1-\cos x}{\sin x} \Rightarrow \frac{\frac{1}{5}}{-\frac{3}{5}} = -\frac{1}{3}$ $\qquad 1 \pm \frac{4}{5}$ $\qquad \frac{\frac{9}{5}}{-\frac{3}{5}} = -3$ مقدار صحیح