

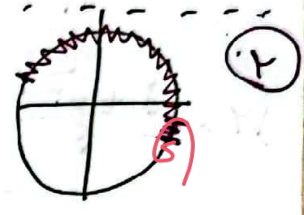
$\cot \alpha = \frac{\cos \alpha}{|\sin \alpha|}$  ,  $\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 - \sin \alpha}{|\cos \alpha|}$

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

$\Rightarrow |\cos \alpha| = \cos \alpha \Rightarrow \cos \alpha > 0$

$\frac{\cos \alpha}{\sin \alpha} = \frac{\cos \alpha}{|\sin \alpha|} \Rightarrow \sin \alpha = |\sin \alpha| \Rightarrow \sin \alpha > 0$

$\frac{-\pi}{12} < x < \frac{5\pi}{12} \Rightarrow \frac{-\pi}{9} < 2x < \frac{5\pi}{9} \Rightarrow \frac{-1}{2} < \sin 2x \leq 1$



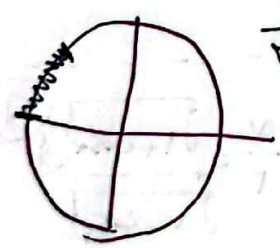
$\Rightarrow \frac{-1}{2} < \frac{m-1}{2} \leq 1 \rightarrow -1 < m-1 \leq 2 \rightarrow -1 < m \leq 3$

$\tan x + \cot x = -\frac{1}{2} \Rightarrow \frac{1}{\sin x \cos x} = -\frac{1}{2} \Rightarrow \sin x \cos x = -\frac{1}{2}$

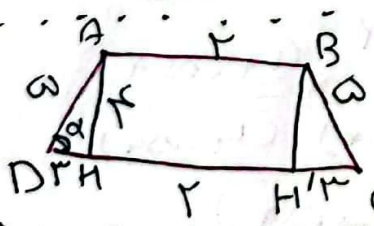
$(\sin x \cos x)^2 = \sin^2 x + \cos^2 x + 2 \sin x \cos x \Rightarrow (\sin x + \cos x)^2 = 1 - \frac{1}{2} = \frac{1}{2}$

$\Rightarrow \sin x + \cos x = \pm \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

$\frac{1}{\left(\frac{\sqrt{2}}{2}\right) \left(1 + \frac{1}{\sqrt{2}}\right)} = \frac{1}{\frac{\sqrt{2}}{2} \left(\frac{\sqrt{2} + 1}{\sqrt{2}}\right)} = \frac{2}{\sqrt{2}(\sqrt{2} + 1)} = \frac{2}{2 + \sqrt{2}} = \frac{2(\sqrt{2} - 1)}{2 - 1} = 2(\sqrt{2} - 1)$



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



$\cos \alpha = \frac{q}{10} \Rightarrow \frac{DH}{AD} = \frac{q}{10} \Rightarrow \frac{DH}{a} = \frac{q}{10} \Rightarrow DH = \frac{aq}{10}$

$\Rightarrow AH = r$

$\tan\left(\frac{r\pi}{r} + \alpha\right) \cdot \tan(-\pi + \alpha) - \sin\left(\frac{r\pi}{r} + \alpha\right) \cdot \cos\left(\frac{r\pi}{r} - \alpha\right) - \cot \alpha \cdot \tan \alpha - \sin \alpha \cdot \sin \alpha = -1 + \sin^2 \alpha$

$\Rightarrow \cos^2 \alpha \Rightarrow K = -1$

$$\sqrt{r} x \cos \pi \cdot \sin\left(\frac{r\pi}{r} - \alpha\right) - \sqrt{r} x \sin \pi \cdot \cos(\pi - \alpha) \quad r \neq 0 \quad (9)$$

$$\sqrt{r} x - \frac{\sqrt{r}}{r} x \cos \alpha - \sqrt{r} x \frac{\sqrt{r}}{r} x \cos \alpha = \frac{r}{r} \cos \alpha + \cos \alpha$$

$$= \left(\frac{2}{r}\right) \cos \alpha$$

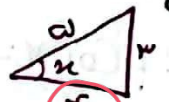
$$14 x \cos^2\left(\frac{\pi}{14}\right) \cdot \cos^2\left(\frac{\pi}{7}\right) \cdot \cos^2\left(\frac{\pi}{7}\right) \cdot \cos^2\left(\frac{r\pi}{r}\right)$$

$$\cos^2 \frac{\pi}{14} = \frac{1 + \cos \frac{\pi}{7}}{2} = \frac{1 + \frac{\sqrt{r}}{r}}{2} = \frac{r + \sqrt{r}}{2r}$$

$$14 x \cdot \frac{r + \sqrt{r}}{2r} \times \frac{r}{r} \times \frac{1}{r} \times \frac{1}{r} = \frac{r + \sqrt{r}}{r}$$

$$\frac{1 - \sin \alpha}{1 + \sin \alpha} \Rightarrow 1 - \sin \alpha = r + r \sin \alpha \Rightarrow \alpha \sin \alpha = -r \Rightarrow \sin \alpha = -\frac{r}{2r}$$

$$\Rightarrow \tan \alpha = \frac{r}{r} \Rightarrow \tan \alpha = \frac{r}{r}$$



$$\tan \alpha = \frac{r \tan \frac{\alpha}{r}}{1 - \tan^2 \frac{\alpha}{r}} \quad \tan \frac{\alpha}{r} = a \quad \frac{r}{r} = \frac{ra}{1 - a^2} \Rightarrow r - ra^2 = \Lambda a$$

$$\Rightarrow ra^2 + \Lambda a - r = 0 \quad \Delta = \Lambda^2 + 4r^2 = 100 \quad a = \frac{-\Lambda \pm 10}{4} = \frac{1}{4} (9 - r)$$

$$\Rightarrow \tan \frac{\alpha}{r} = \frac{r}{r}$$

$$\cot \frac{\alpha}{r} = \frac{\cos \frac{\alpha}{r}}{\sin \frac{\alpha}{r}} = \frac{1 + \cos \alpha}{1 - \cos \alpha} = \frac{1 + \cos \alpha}{1 - \cos \alpha} \Rightarrow \cot \frac{\alpha}{r} = \frac{\sqrt{1 + \cos \alpha}}{\sqrt{1 - \cos \alpha}}$$

$$\frac{\sin \alpha}{1 - \cos \alpha} + \frac{1 + \cos \alpha}{\sin \alpha} = \frac{\sin^2 \alpha + 1 - \cos^2 \alpha}{\sin \alpha (1 - \cos \alpha)} = \frac{r \sin \alpha \sin \alpha}{\sin \alpha (1 - \cos \alpha)} \times \frac{(1 + \cos \alpha)}{(1 + \cos \alpha)}$$

$$\Rightarrow \frac{r \sin (1 + \cos \alpha)}{1 - \cos \alpha} = \frac{r \sin (1 + \cos \alpha)}{\sin \alpha \sin \alpha} = \frac{r (1 + \cos \alpha)}{\sqrt{1 - \cos \alpha}}$$

$$\frac{r \cdot \sqrt{1 + \cos \alpha} \cdot \sqrt{1 + \cos \alpha}}{\sqrt{1 + \cos \alpha} \cdot \sqrt{1 - \cos \alpha}} = \frac{r \sqrt{1 + \cos \alpha}}{\sqrt{1 - \cos \alpha}} = r \cot \frac{\alpha}{r} \Rightarrow K = r$$

$$\sin \alpha = \frac{\sqrt{21}}{10}, \quad \cos \alpha = 1 - \frac{2}{100} = \frac{98}{100} = \frac{\sqrt{98}}{10}$$

(10)

$$\frac{11\pi}{8} = \frac{1\pi}{8} + \frac{10\pi}{8} = \frac{10\pi}{8}$$

(10)

$$\begin{aligned} \cos\left(\frac{10\pi}{8} + \alpha\right) &= \cos \frac{10\pi}{8} \cdot \cos \alpha - \sin \frac{10\pi}{8} \cdot \sin \alpha \\ &= \frac{-\sqrt{21}}{10} \cdot \frac{\sqrt{98}}{10} - \frac{\sqrt{21}}{10} \cdot \frac{\sqrt{21}}{10} = \frac{-\sqrt{196}}{10} - \frac{\sqrt{441}}{10} \end{aligned}$$

$\frac{\pi}{2} / 10$   
 $\frac{\pi}{2} / 10$   
 $\frac{\pi}{2} / 10$

~~$\frac{\pi}{2} / 10$~~