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$$\frac{\cos \alpha}{\sin \alpha} = \frac{\cos \alpha}{|\sin \alpha|} \rightarrow \sin \alpha > 0 \quad -1$$

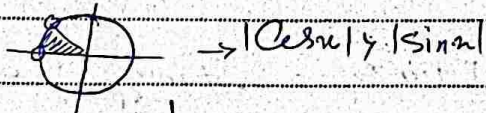
برعکس اول

$$\frac{1}{|\cos \alpha|} = \frac{\sin \alpha}{\cos \alpha} = \frac{1 - \sin \alpha}{\cos \alpha} \rightarrow \cos \alpha > 0 \quad (5)$$

$$-\frac{\pi}{2} < \alpha < \frac{\pi}{2} \rightarrow -\frac{\pi}{2} < \sin \alpha < \frac{\pi}{2} \rightarrow -\frac{1}{2} < \frac{m-1}{2} < \frac{1}{2} \rightarrow -1 < m-1 < 1 \quad -2$$

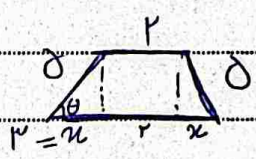
$$-1 < m < 2$$

$$\frac{\pi}{2} < \alpha < \pi \rightarrow \sin \alpha > 0, \cos \alpha < 0 \left\{ \begin{array}{l} \tan \alpha + \cot \alpha = -\mu = \frac{1}{\cos \alpha \sin \alpha} \end{array} \right. \quad (1, 10)$$



$$\frac{1}{\sin \alpha + \cos \alpha} = \frac{1}{(\sin \alpha + \cos \alpha)(\sin \alpha + \cos \alpha - \sin \alpha \cos \alpha)} = \frac{1}{(-\frac{1}{\sqrt{\mu}})(1 + \frac{1}{\mu})} = \frac{\sqrt{\mu}}{\mu} \quad (1)$$

$$(\sin \alpha + \cos \alpha)^2 = \sin^2 \alpha + \cos^2 \alpha + 2 \sin \alpha \cos \alpha = 1 + \frac{2}{\mu} = \frac{1}{\mu} \rightarrow \sin \alpha \cos \alpha = \frac{1}{2\mu} \quad (10)$$



$$\cos \theta = \frac{a}{r} = \frac{a}{\omega} \rightarrow a = \omega \cos \theta \quad \frac{a}{\omega} = \cos \theta \quad r = h$$

$$\cos \theta = \frac{a}{\omega} = \frac{10 \times r}{r} = 10 \quad (5)$$

$$\tan(118^\circ) \tan(-148^\circ) = \sin(698^\circ) \cos(1818^\circ) \quad -2$$

$$= \tan(170^\circ + 18^\circ) \tan(110^\circ - 18^\circ) = \sin 18^\circ \times \cos(170^\circ - 18^\circ) \quad (5)$$

$$= \cot 18^\circ \tan 18^\circ + \sin^2 18^\circ = -1 + \sin^2 18^\circ = k \cos^2 18^\circ \rightarrow k = -1$$

$$A = \sqrt{r} \cos(110^\circ) \sin(110^\circ) - \sqrt{r} \sin(110^\circ) \cos(110^\circ) \quad -4$$

$$= \left(-\frac{r}{r}\right) \times (-\cos 110^\circ) - 1 \times (-\cos 110^\circ) = \frac{1}{r} \cos 110^\circ \Rightarrow \frac{A}{\cos 110^\circ} = \frac{1}{r}$$

$$180^\circ = 110^\circ - 110^\circ$$

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$$4) A = \sqrt{r} v = \frac{\sqrt{r}}{r} v \sin(110^\circ - 110^\circ) - \sqrt{r} v \frac{\sqrt{r}}{r} \cos(110^\circ - 110^\circ)$$

$$\rightarrow \frac{v}{r} \cos(110^\circ) \rightarrow \frac{v}{r}$$

$$f\left(\frac{\pi}{4}\right) = 14 \cos^2\left(\frac{\pi}{4}\right) \cos^2\left(\frac{\pi}{4}\right) \cos^2\left(\frac{\pi}{4}\right) \cos^2\left(\frac{\pi}{4}\right) = \frac{r}{r} \cos^2\left(\frac{\pi}{4}\right) \quad -v$$

$$= \frac{r}{r} \left(\frac{1 + \cos \frac{\pi}{2}}{r}\right) = \frac{r}{r} \left(\frac{1 + \sqrt{\frac{r}{r}}}{r}\right) = \frac{r + r\sqrt{r}}{14}$$

$$\frac{1 - \sin \alpha}{1 + \sin \alpha} = \frac{r}{a} \rightarrow r + \frac{r}{a} \sin \alpha = 1 - \sin \alpha \rightarrow \sin \alpha = -\frac{r}{a}$$

$$\left. \begin{array}{l} \sin \alpha = -\frac{r}{a} \\ \cos \alpha = 1 \end{array} \right\} r \cos \alpha = 1$$

$$\sin \alpha = \frac{r \tan^2 \frac{\alpha}{2}}{1 + \tan^2 \frac{\alpha}{2}} = -\frac{r}{a} \rightarrow \frac{r \tan^2 \frac{\alpha}{2}}{1 + \tan^2 \frac{\alpha}{2}} + \frac{r}{a} = 0 \rightarrow (r \tan^2 \frac{\alpha}{2} + 1)(\tan^2 \frac{\alpha}{2} + \frac{r}{a}) = 0$$

$$\tan \frac{\alpha}{2} = \sqrt{\frac{r}{a}}$$

1, \sqrt{a}

$$\frac{\sin \alpha}{1 + \cos \alpha} = \tan \frac{\alpha}{2} \Rightarrow \frac{\sin \beta}{1 + \cos \beta} = \frac{r \cot \frac{\beta}{2}}{r} = k \cot \frac{\beta}{2} \quad -4$$

$$k = r$$

$$\sin \alpha = \frac{\sqrt{r}}{10}, \quad 1 - \sin^2 \alpha = \frac{100 - r}{100} = \frac{41}{100} \rightarrow \cos \alpha = \frac{\sqrt{41}}{10} \quad \left. \begin{array}{l} \sin \alpha = \frac{\sqrt{r}}{10} \\ \cos \alpha = \frac{\sqrt{41}}{10} \end{array} \right\} r \cos \alpha = 10$$

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

$$= -\frac{\sqrt{41}}{10} \times \frac{\sqrt{r}}{r} - \frac{\sqrt{r}}{10} \times \frac{\sqrt{r}}{r} = +\frac{r}{10} - \frac{1}{10} = \frac{r-1}{10}$$