

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره ... کلاس ...

$$\tan\left(\frac{\pi}{4}\right) = 1 \rightarrow B(0,1)$$

$$\left. \begin{aligned} \tan\left(-m_1 \frac{\pi}{4}\right) = 1 &\rightarrow -m_1 + \frac{\pi}{4} = \frac{\pi}{4} \rightarrow m_1 = \frac{\pi}{4} \\ &\rightarrow -m_1 \frac{\pi}{4} = \frac{\pi}{4} \rightarrow m_1 = -\frac{\pi}{4} \end{aligned} \right\} AC_{\text{طول}} = \frac{\pi}{4}$$

$$S_{ABC} = \frac{1}{2} AC \times BO = \frac{1}{2} \times \frac{\pi}{4} \times 1 = \frac{\pi}{8}$$

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

$$r \sin^2 \alpha - r \sin \alpha + 1 = 0 \rightarrow \sin^2 \alpha - r \sin \alpha + \frac{1}{r} = 0 \rightarrow (\sin \alpha - r_1)(\sin \alpha - r_2) = 0 \rightarrow \sin \alpha = \frac{r}{q} \rightarrow$$

$$\sin \alpha = \frac{1}{r}$$

$$\tan \alpha = \frac{1}{\sqrt{r}}, \quad \tan^2 \alpha + 1 = \frac{1}{r} + 1 = \frac{q}{r}$$

$$\log \sin \alpha - \log(-\cos \alpha) = \log r \rightarrow \log \frac{\sin \alpha}{-\cos \alpha} = \log r \rightarrow -\tan \alpha = r$$

$$\sin \alpha = \frac{1}{\sqrt{r}}, \quad \cos \alpha = -\frac{r}{\sqrt{r}}$$

نکته: دایره تقاطع خط $\cos \alpha$ منفی است.

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

$$\cos^2 \alpha - \sin^2 \alpha = \cos^2 \alpha - \sin^2 \alpha \quad (1)$$

$$\sin^2 \alpha - \cos^2 \alpha = \sin^2 \alpha - \cos^2 \alpha \quad (2)$$

$$\sin^2 \alpha + \cos^2 \alpha = \frac{r}{\omega} \quad (3), \quad \sin^2 \alpha - \cos^2 \alpha + \cos^2 \alpha + \cos^2 \alpha = \frac{r}{\omega} \rightarrow \cos^2 \alpha + \sin^2 \alpha = \frac{r}{\omega}$$

$$\sin^2 \alpha - \frac{1}{\cos \alpha} > 0 \rightarrow \frac{\sin^2 \alpha - 1}{\cos \alpha} > 0 \rightarrow \frac{-\cos^2 \alpha}{\cos \alpha} > 0 \rightarrow \cos \alpha < 0$$

$$\frac{r \sin \alpha + \sin \alpha \cos \alpha}{r(1 - \cos^2 \alpha)} < 0 \rightarrow \frac{r + \cos \alpha}{r \sin \alpha} < 0 \rightarrow \sin \alpha < 0$$

نکته:
در هر دو صورت
 $\sin \alpha < 0$

$$\frac{r \cos \alpha + r \sin \alpha}{\sin \alpha \cos \alpha} = 0 \rightarrow r \cos \alpha + r \sin \alpha = 0 \rightarrow r \cos \alpha = -r \sin \alpha \rightarrow \tan \alpha = \frac{-r}{r} \rightarrow$$

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

$$\tan \alpha + \cot \alpha = \frac{-r}{r} + \frac{-r}{r} = \frac{-1r}{r}$$

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

$$\frac{\sqrt{r} \cos \alpha}{\cos \alpha} = \sqrt{r}$$

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

$$(\cos 1)(r \cos 1 - 1)(r(r \cos 1 - 1) - 1)$$

$$(\sin \alpha + r \cos \alpha)^2 = r \rightarrow \sin^2 \alpha + 4 \sin \alpha \cos \alpha + 4 \cos^2 \alpha = r \rightarrow 4 \cos^2 \alpha + 4 \sin \alpha \cos \alpha = r$$

$$(\sin \alpha = r \cos \alpha) \rightarrow 4 \cos^2 \alpha + 4 \cos \alpha (r \cos \alpha) = r \rightarrow 4 \cos^2 \alpha + 4r \cos^2 \alpha = r \rightarrow$$

$$4 \cos^2 \alpha - 4r \cos^2 \alpha + r = 0 \rightarrow 4 \cos^2 \alpha - 4r \cos^2 \alpha = -r$$

$$4(r \cos^2 \alpha - 1) - 4r \cos^2 \alpha = -r \rightarrow 4r \cos^2 \alpha - 4 - 4r \cos^2 \alpha = -r \rightarrow$$

$$\sin B \sin C \leq \cos^2 \frac{A}{2} \xrightarrow{B=C} \sin^2 \frac{A}{2} \sin C \leq \cos^2 \frac{A}{2} \xrightarrow{C=A} \sin^2 \frac{A}{2} = \cos^2 \frac{A}{2} \rightarrow$$

$$\frac{A}{2} \leq 90^\circ - \frac{A}{2} = 180^\circ - A \rightarrow A \leq 180^\circ \quad \text{or} \quad \frac{A}{2} + \frac{A}{2} + \frac{A}{2} = 180^\circ \Rightarrow \frac{3A}{2} = 180^\circ \Rightarrow A = 120^\circ$$