

$$T = \frac{\pi}{1-r} = \frac{\pi}{r} = AC$$

$$B = \tan \frac{\pi}{k} = 1$$

$$S = \frac{AC \times B}{r} = \frac{\frac{\pi}{r} \times 1}{r} = \frac{\pi}{r}$$

(1)

(2) ✓

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

$$\Rightarrow q \sin^2 \alpha - r \sin \alpha + 1 = 0 \Rightarrow \sin \alpha = \frac{r \pm \sqrt{r^2 - 4q}}{2q} = \frac{r \pm 1}{2q} \begin{matrix} \text{GÜ} \\ \text{GÜ} \end{matrix}$$

$$1 - \tan^2 \alpha = \frac{1}{\cos^2 \alpha} = \frac{q}{r} \quad (3) \checkmark$$

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

(4)

$$\Rightarrow (-r \cos \alpha)^2 + \cos^2 \alpha = 1 \Rightarrow \cos^2 \alpha = \frac{1 - r^2}{1} \quad \sin \alpha = \sqrt{1 - \frac{1}{100}} = \sqrt{\frac{9}{10}} = \frac{3\sqrt{10}}{10}$$

$$\sin \alpha - \cos \alpha = \frac{3\sqrt{10}}{10} - \frac{\sqrt{10}}{10} = \frac{2\sqrt{10}}{10} \quad (5) \checkmark$$

$$\sin^2 \alpha + \cos^2 \alpha = \frac{r}{\Delta} \Rightarrow \sin^2 \alpha - \sin^2 \alpha + \frac{1}{\Delta} = 0$$

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

(6)

$$\Rightarrow 1 + \cos^2 \alpha - 2 \cos^2 \alpha + \cos^2 \alpha = \frac{r}{\Delta} \Rightarrow \cos^2 \alpha - \cos^2 \alpha + \frac{1}{\Delta} = 0 \quad \sin^2 \alpha - \sin^2 \alpha + \frac{1}{\Delta} = \cos^2 \alpha - \cos^2 \alpha + \frac{1}{\Delta} \Rightarrow$$

$$\Rightarrow \cos^2 \alpha + \sin^2 \alpha = \sin^2 \alpha + \cos^2 \alpha = \frac{r}{\Delta} \quad (7) \checkmark$$

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

(8)

$$\frac{r \sin \alpha + \sin \alpha \cos \alpha}{r - r \cos^2 \alpha} < 0 \Rightarrow \frac{\sin \alpha (r + \cos \alpha)}{r(1 - \cos^2 \alpha)} = \frac{(r + \cos \alpha) \sin \alpha}{r \sin^2 \alpha} \Rightarrow \begin{cases} r + \cos \alpha > 0 \\ r \sin^2 \alpha > 0 \end{cases} \Rightarrow \sin \alpha < 0$$

(9) ✓

هم sin و هم cos متغیراند در نتیجه دامنه هم از آن

0 < 1.54