

کوسین: وتر با وتر وتر وتر وتر

19,5

نام و نام کناری: زاویه

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

باتوجه به D و D است

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

$$\cot = \frac{\cos \alpha}{\sqrt{1 - \cos^2 \alpha}} = \frac{\cos \alpha}{\sqrt{\sin^2 \alpha}} = \frac{\cos \alpha}{|\sin \alpha|} \rightarrow \frac{\cos \alpha}{\sin \alpha} = \frac{\cos \alpha}{|\sin \alpha|} \rightarrow \sin \alpha > 0 \quad (2)$$

$$\sin 2\pi = \frac{m-1}{\epsilon} \rightarrow \frac{\pi}{1\pi} \left(\pi < \frac{d\pi}{1\pi} \frac{x\pi}{\pi} \right) = \frac{-\pi}{y} \left(\pi < \frac{d\pi}{y} \frac{\sin}{y} \right) = \frac{-1}{y} \left(\sin \pi < 1 \right)$$

$$\rightarrow -\frac{1}{y} \left(\frac{m-1}{\epsilon} \right) < 1 \rightarrow -2 \left(m-1 \right) < \epsilon \rightarrow -1 < m < d \rightarrow \boxed{[-1, d]}$$

$$(1) \tan \pi + \cot \pi = -2 \quad \pi < \epsilon < \pi \rightarrow (1) = \frac{\cos^2 \pi + \sin^2 \pi}{\sin \pi \cos \pi} = -2 \rightarrow \sin \pi \cos \pi = \frac{-1}{\pi}$$

$$\frac{1}{\sin^2 \pi + \cos^2 \pi} = \frac{1}{(\sin \pi \cos \pi)(\sin \pi + \cos \pi - \sin \pi \cos \pi)} = \frac{1}{\frac{-1}{\sqrt{\pi}} \times \frac{\epsilon}{\pi}} = \frac{-\sqrt{\pi}}{\epsilon}$$

$$(2) (\sin \pi \cos \pi)^2 = \sin^2 \pi \cos^2 \pi + \cos^2 \pi \sin^2 \pi = (1 + 2(-\frac{1}{\pi})) = \frac{1}{\pi} \rightarrow \sin \pi + \cos \pi \left\{ \begin{array}{l} \frac{1}{\sqrt{\pi}} \times \\ -\frac{1}{\sqrt{\pi}} \checkmark \end{array} \right. \Rightarrow \sin \pi \cos \pi = \frac{-1}{\sqrt{\pi}}$$

$$(3) \pi < \epsilon < \pi \xrightarrow{\div \epsilon} \frac{\pi}{\epsilon} < \pi < \pi \rightarrow |\sin \pi| < |\cos \pi|$$

$$\cos \theta = \frac{9}{11} \rightarrow \frac{DH}{AD} = \frac{9}{11} \rightarrow DH = 9 = PC$$

$$\text{مسئله} \Rightarrow AH = \sqrt{d+9} = \epsilon$$

$$s = \frac{(x+1) \times \epsilon}{2} = \boxed{2}$$

$$\tan(\pi \Delta) \tan(\Delta \gamma d) - \sin(\Delta \gamma d) \cos(\pi \Delta)$$

$$\hookrightarrow \tan(\pi \Delta + \Delta) \tan(-\Delta + \Delta) - \sin(\Delta + \Delta) \cos(\pi \Delta - \Delta)$$

$$\hookrightarrow (-\cot \Delta) (\tan \Delta) - (\sin \Delta) (-\sin \Delta) = -1 + \sin^2 \Delta = -1(1 - \sin^2 \Delta)$$

$$= -\cos^2 \Delta = k \cos^2 \Delta \rightarrow \boxed{k = -1}$$

9

$$A = \sqrt{r} \cos(\pi/4) \sin(\pi/4) - \sqrt{r} \sin(\pi/4) \cos(\pi/4) =$$

$$A = \sqrt{r} (\cos(\pi/4) \sin(\pi/4) - \sin(\pi/4) \cos(\pi/4)) =$$

$$= \sqrt{r} (-\cos(\pi/4) \cos(\pi/4) - \sin(\pi/4) \sin(\pi/4)) = \sqrt{r} (-\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}) = -\sqrt{2}r$$

$$= \frac{A}{r} \cos(\pi/4) \Rightarrow \frac{A}{r} \cos(\pi/4) = \frac{A}{r}$$

$$f(n) = 14 \cos^2(\pi/n) \cos^2(2\pi/n) \cos^2(3\pi/n) \cos^2(4\pi/n)$$

$$f(\frac{\pi}{4})$$

$$\hookrightarrow f(\frac{\pi}{4}) = 14 \cos^2(\frac{\pi}{4}) \cos^2(\frac{\pi}{2}) \cos^2(\frac{3\pi}{4}) \cos^2(\pi)$$

$$\hookrightarrow 14 \times \frac{\sqrt{2} + \sqrt{2}}{2} \times \frac{0}{2} \times \frac{1}{2} \times \frac{1}{2} = \frac{14}{4}$$

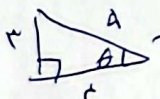
$$\cos^2(\frac{\pi}{4}) = \cos^2(\pi/4) = \frac{1 + \cos(\pi/2)}{2}$$

$$\hookrightarrow \cos^2(\pi/4) = \frac{(\sqrt{2} + \sqrt{2})^2}{4} = \frac{4 + 2\sqrt{2}}{4}$$

$$\frac{1 - \sin \pi}{1 + \sin \pi} = \epsilon$$

$$\tan \frac{\pi}{4} = \epsilon \rightarrow \tan \frac{\pi}{4} = \frac{\sin \pi}{1 + \cos \pi} = \frac{-\frac{\epsilon}{a}}{1 - \frac{\epsilon}{a}} = -\frac{\epsilon}{a - \epsilon}$$

$$\hookrightarrow 1 - \sin \pi = \epsilon + \epsilon \sin \pi \rightarrow -\epsilon = 2 \sin \pi \rightarrow \sin \pi = \frac{-\epsilon}{2}$$



$$\cos \pi = \frac{\epsilon}{a} \xrightarrow{\text{obj}} -\frac{\epsilon}{a}$$

$$\frac{\sin \theta}{1 - \cos \theta} + \frac{1 + \cos \theta}{\sin \theta} = k \cot \frac{\theta}{r}$$

$$\textcircled{1} \frac{\sin \theta}{1 + \cos \theta} = \tan \frac{\theta}{r} \xrightarrow{\text{obj}} \frac{1 + \cos \theta}{\sin \theta} = \cot \frac{\theta}{r}$$

$$\textcircled{2} \frac{1 - \cos \theta}{\sin \theta} = \tan \frac{\theta}{r} \xrightarrow{\text{obj}} \frac{\sin \theta}{1 - \cos \theta} = \cot \frac{\theta}{r}$$

$$\textcircled{1} \cot \frac{\theta}{r} + \cot \frac{\theta}{r} = k \cot \frac{\theta}{r}$$

$$k = 2$$

$$\cos(\frac{11\pi}{6} + \alpha) = \cos^2 \alpha + \sin^2 \alpha = 1 \xrightarrow{\text{obj}} \cos \alpha + \sqrt{1 - \sin^2 \alpha} = -\sqrt{\frac{69}{25}} = -\frac{\sqrt{69}}{5}$$

$$\cos(\frac{7\pi}{6} + \frac{11\pi}{6} + \alpha) = \cos(\frac{4\pi}{3} + \alpha) = \cos \alpha \cos \frac{4\pi}{3} - \sin \alpha \sin \frac{4\pi}{3}$$

$$\Rightarrow \left(-\frac{\sqrt{69}}{5} \times \frac{\sqrt{3}}{2} \right) - \left(\frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} \right) = \frac{\sqrt{69}}{10} - \frac{3}{4} = \frac{4\sqrt{69} - 75}{40}$$