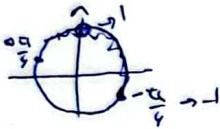


نام و نام خانوادگی: کلاس: پاسخنامه تشریحی تکلیف شماره کلاس

$$\cot \alpha = \frac{\cos \alpha}{\sin \alpha} \rightarrow \cot \alpha = \frac{\cos \alpha}{\sin \alpha} \rightarrow \sin \alpha > 0 \rightarrow \text{مثبت}$$

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

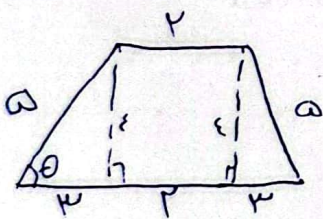
$$-\frac{\pi}{4} < m < \frac{\pi}{4} \rightarrow -\frac{1}{\sqrt{2}} < \sin m < \frac{1}{\sqrt{2}} \rightarrow \frac{1}{\sqrt{2}} < m < \frac{1}{\sqrt{2}} \rightarrow -\frac{\pi}{4} < m < \frac{\pi}{4}$$



$$\tan \alpha + \cot \alpha = -\frac{1}{\mu} \rightarrow \frac{1}{\sin \alpha \cos \alpha} = -\frac{1}{\mu}$$

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

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



$$\cos \theta = \frac{y}{x} = \frac{h}{a}$$

$$S = \frac{(x+y) \times h}{2} = y$$



$$\tan(m\alpha) \rightarrow \tan\left(\frac{\pi}{4} - \alpha\right) = \cot(\alpha)$$

$$\tan(-4\alpha) \rightarrow -\tan(4\alpha) = -\tan(\pi - \alpha) = \tan \alpha$$

$$\sin(10\alpha) = \sin \alpha$$

$$\cos(14\alpha) = \cos\left(\frac{\pi}{4} - \alpha\right) = -\sin \alpha$$

$k = -1$

$$\rightarrow -\cot \alpha \times \tan \alpha - \sin \alpha \times \sin \alpha = -1 - \sin^2 \alpha = -\cos^2 \alpha$$

$$\cos \pi/10 = -\frac{\sqrt{10}}{10}$$

$$\sin^2 \pi/5 = \sin^2(\frac{2\pi}{10} - \pi) = -\cos^2 \pi/5$$

$$\sin(\pi/10) = \frac{\sqrt{10}}{10}$$

$$\cos(10\pi) = \cos(\pi - 2\pi) = \cos \pi$$

$$\sqrt{10} + \frac{-\sqrt{10}}{10} \times -\cos^2 \pi/5 \times \cos \pi$$

\downarrow
 $\pi/10 \cos^2 \pi/5$

6

$$14 \cos^2(\frac{\pi}{10}) \cos^2(\frac{\pi}{5}) \cos^2(\frac{\pi}{10}) \cos^2(\frac{\pi}{10}) = \frac{\sqrt{10}}{10} \times \frac{\sqrt{10}}{10} - \frac{\sqrt{10}}{10} \rightarrow \frac{\sqrt{10}-\sqrt{10}}{10}$$

$$\frac{14(\sqrt{10}+\sqrt{10})^2}{14} \times \frac{10}{10} \times \frac{1}{10} \times \frac{1}{10} = \frac{(1+\sqrt{10})^2}{14} \times \frac{10}{10} \rightarrow \frac{4+4\sqrt{10}}{14}$$

7

$$\frac{1-\sin \alpha}{1+\sin \alpha} = \epsilon \rightarrow 1 + \sin \alpha = \epsilon(1 - \sin \alpha) \rightarrow \sin \alpha = \frac{1-\epsilon}{1+\epsilon}$$

$$\cos \alpha = -\frac{1-\epsilon^2}{1+\epsilon^2}$$

$$\tan \frac{\alpha}{2} = \frac{\sin \alpha}{1 + \cos \alpha} = \frac{-0.4}{0.8} = -0.5$$

8

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

$$\sin \alpha = \pi \sin(\frac{\alpha}{\pi}) \cos(\frac{\alpha}{\pi})$$

$$1 - \cos \alpha = \pi \sin^2(\frac{\alpha}{\pi})$$

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

$$\frac{\pi \sin(\frac{\alpha}{\pi}) \cos(\frac{\alpha}{\pi})}{\pi \sin^2(\frac{\alpha}{\pi})} + \frac{\pi \cos^2(\frac{\alpha}{\pi})}{\pi \sin(\frac{\alpha}{\pi}) \cos(\frac{\alpha}{\pi})} = \cot \frac{\alpha}{\pi}$$

$\alpha = \pi$

9

$$1 - \sin^2 \alpha = \cos^2 \alpha \rightarrow 1 - \frac{1}{100} = \cos^2 \alpha$$

$$\cos = -\frac{\sqrt{99}}{10}$$

$$\cos(\frac{11\pi}{10} + \alpha) \rightarrow \cos(\frac{11\pi}{10} + \alpha) = \cos \frac{11\pi}{10} \cos \alpha - \sin \frac{11\pi}{10} \sin \alpha = (-\frac{\sqrt{10}}{10} \times -\frac{\sqrt{99}}{10}) - (\frac{\sqrt{10}}{10} \times \frac{1}{10})$$

$$\frac{10}{10} = 1$$

10