صدری کاظمی لرده پیر B

$\frac{1}{2} \times 9 \times \sqrt{2} \times \sin(\gamma) = \frac{9}{2}$ ①

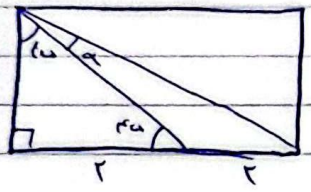
$\sin\alpha = \frac{\sqrt{2}}{2}$

$\alpha = 60$

$\alpha = 120$ ②

$\frac{120}{60} = 2$

②



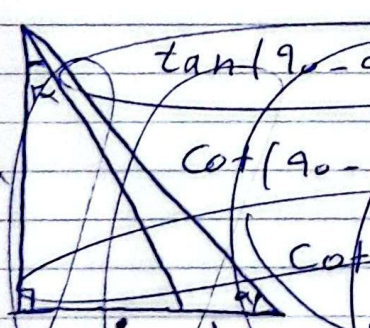
$\cot(\alpha + 45) = \frac{2}{4} = \frac{1}{2}$

$\cot(\alpha + 45) = \frac{1 - \tan\alpha}{1 + \tan\alpha} = \frac{1}{2}$

$2 - 2\tan\alpha = 1 + \tan\alpha \longrightarrow 2\tan\alpha = 1$

$\tan\alpha = \frac{1}{2}$

$\cot\alpha = 2$



$\tan(90 - \alpha) = \frac{2}{\alpha}$

$\cot(90 - \alpha) = \frac{\alpha}{2}$

$\cot(2\alpha) = \frac{\alpha}{2}$

$\cot(90 - \alpha) = \tan\alpha$

$\cot\alpha > 0$

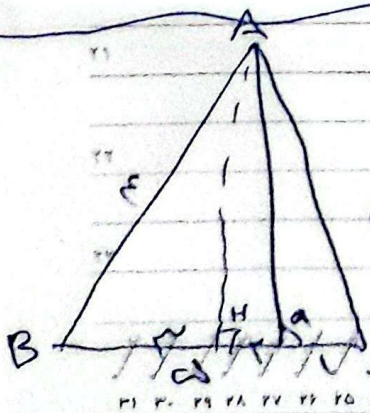
$\frac{\tan\alpha}{\cot\alpha} = \frac{\tan\alpha}{1} = \frac{\frac{\alpha}{2}}{\frac{\alpha}{4}} = 2$

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

$2\tan^2\alpha = 2 - 2\tan^2\alpha$

$4\tan^2\alpha = 2$

$\tan^2\alpha = \frac{1}{2}$



④

$AH^2 = 4^2 - 3^2 \longrightarrow AH = \sqrt{7}$

$-\tan\alpha = \frac{\sqrt{7}}{2} \longrightarrow \tan\alpha = \frac{-\sqrt{7}}{2}$

شنبه ۲ اردیبهشت ۱۳۹۶
22. April . 2017
۰۲۴ رجب ۱۴۳۸

۵) $2\sin^2 x + \cos^2 x = \frac{5}{4}$ $\quad \tan^2 x = ?$

$$\sin^2 x + \frac{\sin^2 x + \cos^2 x}{2} = \frac{5}{4}$$

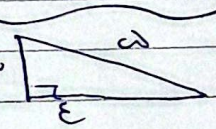
$$1 + \cot^2 x = \frac{1}{\sin^2 x} \longrightarrow 1 + \cot^2 x = 4 \longrightarrow \cot^2 x = 3$$

$$\tan^2 x = \frac{1}{3}$$

۶)
$$\frac{\sin^4\alpha + 4(1-\sin^2\alpha)}{1 + (1-\sin^2\alpha)} - \frac{\cos^4\alpha + 4(1-\cos^2\alpha)}{1 + (1-\cos^2\alpha)} =$$

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

۷)
$\tan\alpha = \frac{4}{3}$ $\quad \cot\alpha = \frac{3}{4}$



$$\sin\alpha = -\frac{4}{5} \quad \cos\alpha = -\frac{3}{5}$$

$$\sin\left(\frac{9\pi}{2} + \alpha\right) = +\cos\alpha$$

$$\cos\left(\frac{7\pi}{2} - \alpha\right) = -\sin\alpha$$

$$\tan\left(\alpha - \frac{5\pi}{2}\right) = -\cot\alpha$$

$$\therefore -\cos\alpha + \sin\alpha - (-\cot\alpha) = -\left(-\frac{3}{5} \times -\frac{4}{5}\right) + \frac{3}{4} = 1$$

$$\frac{12}{25} + \frac{3}{4} = 0/27$$

۸) $\left(2\cos^2 x + \sqrt{2}\sin x - \sqrt{2}\cos x\right)$

$x = \frac{\pi}{12}$

$\frac{\pi}{12} = 15^\circ \longrightarrow \sin 15^\circ = \sin(45^\circ - 30^\circ) = \frac{\sqrt{6}-\sqrt{2}}{4}$

$\cos 15^\circ = \cos(60^\circ - 45^\circ) = \frac{\sqrt{6}+\sqrt{2}}{4}$

$\frac{1}{2}$

پنج شنبه ۳۱ فروردین ۱۳۹۶
20 . April . 2017
۰۲۲ رجب ۱۴۳۸

(۹)

$\tan\left(\frac{\alpha}{2}\right)=\frac{1}{4}$

$\sin\alpha=\frac{2\tan\frac{\alpha}{2}}{1+\tan^2\frac{\alpha}{2}}=\frac{8}{17}$

$\cos\alpha=\frac{1-\tan^2\frac{\alpha}{2}}{1+\tan^2\frac{\alpha}{2}}=\frac{15}{17}$

$\tan\alpha=\frac{\sin\alpha}{\cos\alpha}=\frac{8}{15}$

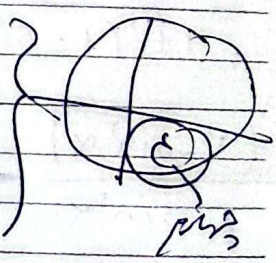
$\frac{\frac{8}{15}-\frac{8}{17}}{\frac{8}{17}-\frac{15}{17}}=\frac{\frac{16}{255}}{\frac{-7}{17}}=\frac{-16}{105}$

(۱۰)

$\frac{\frac{\cos\alpha}{\sin\alpha}}{\sin\alpha}=\frac{\cos\alpha}{\sin^2\alpha}>0\longrightarrow\cos\alpha>0$

$2\sin\alpha<\sin 2\alpha\longrightarrow\sin\alpha(1-\cos\alpha)<0$

$\sin\alpha<0$



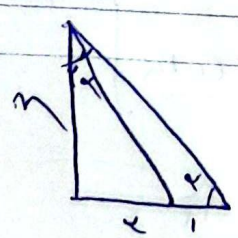
(۳)

$\tan 2\alpha=\frac{2}{n}$

$\tan\alpha=\frac{n}{2}$

$\frac{2}{n}=\frac{2\left(\frac{n}{2}\right)}{1-\frac{n^2}{4}}\longrightarrow n=\frac{3}{2}\longrightarrow\tan\alpha=\frac{1}{2}$

$\cot\alpha=2$



جمعه ۱ اردیبهشت ۱۳۹۶
21 . April . 2017
۰۲۳ رجب ۱۴۳۸

۳۱ ۳۰ ۲۹ ۲۸ ۲۷ ۲۶ ۲۵ ۲۴ ۲۳ ۲۲ ۲۱ ۲۰ ۱۹ ۱۸ ۱۷ ۱۶ ۱۵ ۱۴ ۱۳ ۱۲ ۱۱ ۱۰ ۹ ۸ ۷ ۶ ۵ ۴ ۳ ۲ ۱

روز بزرگداشت سعدی