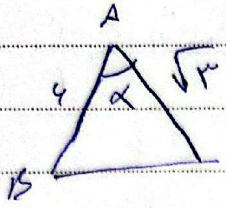


باران شرفی سری نسبت و هفتگی مسائل

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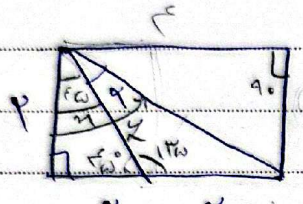


$S = \frac{1}{2} r \cdot r$

$\frac{1}{2} r \cdot r = \frac{1}{2} \sqrt{r} \times r \times \sin \alpha \rightarrow \frac{r}{\sqrt{r}} \times \frac{1}{\sqrt{r}} = \frac{r \sqrt{r}}{r \times r} = \sin \alpha$

برابر $\alpha = 45^\circ$
 $\alpha = 90^\circ$

سوال ۲



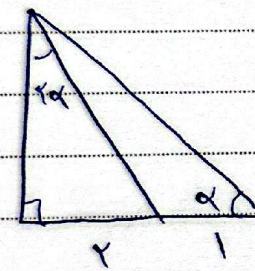
$\cot \alpha = ?$

$\tan \alpha = \tan(\gamma - \alpha)$

$\tan \alpha = \frac{r}{r} = 1 \quad \tan \gamma = \frac{r}{r} = 1$

$\tan(\gamma - \alpha) = \frac{\tan \gamma - \tan \alpha}{1 + \tan \alpha \tan \gamma} = \frac{1 - 1}{1 + 1} = 0 \quad \cot \alpha = \infty$

سوال ۳



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

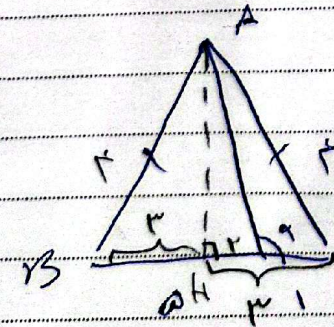
$\tan \alpha = \frac{n}{r} \quad \tan 2\alpha = \frac{r}{n}$

$\frac{\frac{r \cdot n}{r}}{\frac{r}{r}} = \frac{\frac{r \cdot n}{r}}{\frac{r}{r}} = \frac{r \cdot n}{r} = \frac{r}{n} \rightarrow r \cdot n^2 = 1 \cdot r \cdot n^2$
 $1 = \frac{r \cdot n}{r} \rightarrow \frac{r \cdot n}{r} = \frac{r}{n} \rightarrow r \cdot n^2 = 1 \cdot r \cdot n^2 \rightarrow n^2 = \frac{1 \cdot r}{r} = \frac{r}{r}$

$\tan \alpha = \frac{r}{r} = 1 \quad \cot \alpha = 1$

$n = \frac{r}{r}$

سوال ۴



$\tan \alpha$
 $AH^2 + 9 = 14 \rightarrow AH = \sqrt{5}$

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

$\tan(\pi - \alpha) = \frac{\sqrt{5}}{r} \quad \tan \alpha = \frac{-\sqrt{5}}{r}$

$$\tan^2 = ? \quad r \sin^2 n + \cos^2 n = \frac{r}{r} = 1 \quad \text{و جاب}$$

$$\sin^2 n + \sin^2 n + \cos^2 n = \frac{r}{r} \rightarrow \sin^2 n = \frac{1}{r} \quad ??$$

$$\cos^2 n = 1 - \sin^2 n = 1 - \frac{1}{r} \quad \tan^2 n = \frac{\frac{1}{r}}{\frac{r-1}{r}} = \frac{1}{r-1}$$

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

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

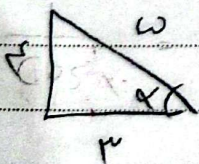
$$\frac{1 + \cos^2 \alpha - r \cos^2 \alpha + r \cos^2 \alpha}{1 + \cos^2 \alpha} = \frac{1 + r \sin^2 \alpha + \sin^2 \alpha}{1 + \sin^2 \alpha}$$

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

$$\tan \alpha = \frac{r}{r-1} \quad \alpha \text{ p q r} \quad : \text{و جاب}$$

$$\sin\left(\frac{9\pi}{r} + \alpha\right) \cos\left(\frac{r\pi}{r} - \alpha\right) - \tan\left(\alpha - \frac{r\pi}{r}\right) = -\cot \alpha$$

$$\rightarrow \sin\left(\frac{\pi}{r} + \alpha\right) = \cos \alpha \quad \rightarrow -\sin \alpha$$



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

$$\cot \alpha = \frac{w}{r}$$

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

$$-\frac{w}{r} \times -\left(-\frac{r}{w}\right) - \left(-\frac{w}{r}\right) = -\frac{1}{r} + \frac{r}{r} = \frac{r-1}{r}$$

بھار ان شریفی سری نیست و ہفتہ تاس A

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$$3 \cos 45^\circ + \sqrt{2} \sin 45^\circ - \sqrt{2} \cos 45^\circ \quad \theta = \frac{\pi}{12} \quad \text{سوال 1}$$

$$3 \cos 45^\circ + \sqrt{2} \sin 45^\circ - \sqrt{2} \cos 45^\circ \quad \theta > 15^\circ$$

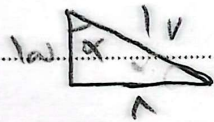
$$\sin 15^\circ = \sin(45^\circ - 30^\circ) = \sin 45^\circ \cos 30^\circ - \sin 30^\circ \cos 45^\circ$$

$$\frac{\sqrt{2}}{2} \times \frac{\sqrt{3}}{2} - \frac{1}{2} \times \frac{\sqrt{2}}{2} = \frac{\sqrt{6} - \sqrt{2}}{4}$$

$$\cos(45^\circ - 30^\circ) = \cos 45^\circ \cos 30^\circ + \sin 45^\circ \sin 30^\circ = \frac{\sqrt{2}}{2} \times \frac{\sqrt{3}}{2} + \frac{\sqrt{2}}{2} \times \frac{1}{2} = \frac{\sqrt{6} + \sqrt{2}}{4}$$

$$\frac{\tan \alpha - \sin \alpha}{\sin \alpha - \cos \alpha}$$

$$\sin \alpha = \frac{r \tan \frac{\alpha}{2}}{1 + \tan^2 \frac{\alpha}{2}} = \frac{r \times \frac{1}{r}}{1 + \frac{1}{r^2}} = \frac{r}{r^2 + 1}$$



$$\cos \alpha = \frac{1}{\sqrt{1+r^2}} \Rightarrow \cos \alpha = \frac{1}{\sqrt{1+r^2}}$$

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

$$\frac{\frac{1}{\sqrt{1+r^2}} - \frac{1}{\sqrt{1+r^2}}}{\frac{1}{\sqrt{1+r^2}} - \frac{1}{\sqrt{1+r^2}}} = \frac{\frac{1}{\sqrt{1+r^2}} - \frac{1}{\sqrt{1+r^2}}}{\frac{1}{\sqrt{1+r^2}} - \frac{1}{\sqrt{1+r^2}}} = \frac{1}{1}$$

$$r \sin \alpha < r \sin 2\alpha \quad 0 < \frac{\cot \alpha}{\sin \alpha}$$

$r \sin \alpha < r \sin \alpha \cos \alpha$ (با ناصیه چهارم هر دو منفی)

$d < \cos \alpha$ با ناصیه اول هر دو مثبت

2) ناصیه سوم

$\sin \alpha$ منفی است \rightarrow ناصیه چهارم