

هم در دفتر

« جواب بلیف شماره ۱۸ »

مختار سلو

۱۹،۵ ماه

Date:

الف) $\tan(\pi + \frac{\pi}{4}) + \sin(\pi + \frac{\pi}{4}) \cos(\pi + \frac{\pi}{4})$ (سؤال ۱) α

$\hookrightarrow -1 + \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = -1 + \frac{1}{2} = -\frac{1}{2}$

ب) $\tan(\pi + \frac{\pi}{4}) \sin(\pi + \frac{\pi}{4}) + \cos(\pi + \frac{\pi}{4}) = -\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} + \frac{1}{2} = 0$

$\cot \alpha = \frac{\cos \alpha}{\sin \alpha} = k \rightarrow k \sin \alpha = \cos \alpha$ (سؤال ۲)

$\frac{k \cos \alpha - \sin \alpha}{\cos \alpha + \sin \alpha} = \frac{k \sin \alpha - \sin \alpha}{k \sin \alpha + \sin \alpha} = \frac{11 \sin \alpha}{\sin \alpha} = 11$

$\sin \alpha = k \cos \alpha \rightarrow \cos \alpha, \sin \alpha < 0$

$\sin^2 \alpha + \cos^2 \alpha = 1 \rightarrow k^2 \cos^2 \alpha + \cos^2 \alpha = 1 \rightarrow \cos^2 \alpha = \frac{1}{k^2 + 1} = \frac{1}{10}$

$\cos \alpha = \pm \frac{1}{\sqrt{10}} = \pm \frac{\sqrt{10}}{10} \rightarrow$ چون در ربع دوم است $\cos \alpha = -\frac{\sqrt{10}}{10}$

$\cos(\frac{11\pi}{6} + \alpha) = \cos(\pi + \frac{\pi}{6} + \alpha) = -\cos(\frac{\pi}{6} + \alpha)$ (سؤال ۳)

$\cos(\alpha + \beta) = \cos \alpha \cos \beta - \sin \alpha \sin \beta \Rightarrow \cos(\frac{\pi}{6} + \alpha) = \cos \alpha \cos \frac{\pi}{6} - \sin \alpha \sin \frac{\pi}{6}$

$\cos \alpha \times \frac{\sqrt{3}}{2} - \sin \alpha \times \frac{1}{2} = -\frac{1}{2} \rightarrow \cos \alpha \times \frac{\sqrt{3}}{2} - \sin \alpha \times \frac{1}{2} = -\frac{1}{2}$

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

ب) $\sin(\frac{11\pi}{6} + \alpha) = \sin(\pi + \frac{\pi}{6} + \alpha) = -\sin(\frac{\pi}{6} + \alpha)$

$\sin(\alpha + \beta) = \sin \alpha \cos \beta + \cos \alpha \sin \beta \rightarrow \sin(\frac{\pi}{6} + \alpha) = \sin \alpha \cos \frac{\pi}{6} + \cos \alpha \sin \frac{\pi}{6}$

$\sin^2 \alpha + \cos^2 \alpha = 1 \Rightarrow \sin^2 \alpha + \sin^2 \alpha + \cos^2 \alpha = \frac{k^2}{k^2 + 1}$ (سؤال ۴)

$\tan^2 \alpha = \frac{\sin^2 \alpha}{\cos^2 \alpha} = \frac{\frac{k^2}{k^2 + 1}}{\frac{1}{k^2 + 1}} = \frac{k^2}{1} = k^2$

$\hookrightarrow \sin^2 \alpha = \frac{1}{10} \Rightarrow \cos^2 \alpha = \frac{9}{10}$



$S = \frac{1}{2} ab \sin \alpha$

$S_{F, \omega} = \frac{1}{2} \times 4 \times \sqrt{3} \times \sin \alpha$

$F_{1, \omega} = 10 \sqrt{3} \times \sin \alpha \rightarrow \sin \alpha = \frac{\sqrt{3}}{10} \Rightarrow \alpha = 10^\circ$

$\tan \alpha = \frac{\sin \alpha}{\cos \alpha} = \frac{1}{\sqrt{3}} \Rightarrow \sin \alpha = \cos \alpha$

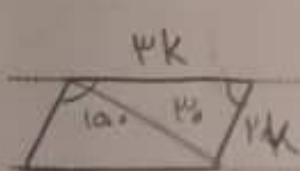
$\sin(\frac{5\pi}{6} + \alpha) = \sin \alpha \cos \frac{5\pi}{6} + \cos \alpha \sin \frac{5\pi}{6} = \sin \alpha \times (-\frac{\sqrt{3}}{2}) + \cos \alpha \times \frac{1}{2}$

$\Rightarrow \frac{-\sqrt{3}}{2} \times \frac{1}{\sqrt{3}} + \frac{1}{2} \times \frac{1}{\sqrt{3}} = \frac{1}{2} + \frac{1}{2\sqrt{3}} = \frac{1}{2} (1 + \frac{1}{\sqrt{3}})$

در ۱۰۰ درجه بیشتر از یک باشند!

$\cos \alpha = \frac{\sqrt{3}}{10} \rightarrow \sin \alpha = \frac{1}{10}$

Subject:



$$S = \omega K$$

$$\hookrightarrow \frac{1}{k} \times \frac{1}{k} \times PK \times PK \times \sin 100^\circ = \omega K$$

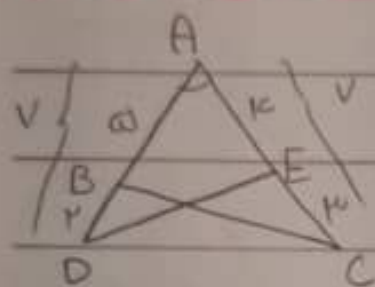
$$\omega K^2 = \omega K \Rightarrow \sqrt{K^2} = \sqrt{1/\omega}$$

سؤال ٧

$$100\sqrt{2}$$

$$= 100(\sqrt{2} + 4\sqrt{2}) = 500\sqrt{2} \leftarrow 100 \times 100\sqrt{2} = 10000\sqrt{2}, 100 \times 100\sqrt{2} = 10000\sqrt{2} \leftarrow K = 100\sqrt{2}$$

مجموع مربعات
في المثلث



$$S_{ABC} - S_{ADE} = 1/\omega$$

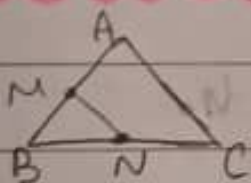
سؤال ٨

$$\frac{1}{k} \times \omega \times \sin A - \frac{1}{k} \times \omega \times k \times \sin A = 1/\omega$$

$$\frac{1}{k} (\omega \sin A - k \sin A) = 1/\omega$$

$$A = 100^\circ \Rightarrow \sin 100^\circ = \sin A = \frac{1}{k} \Rightarrow \sin A = \frac{1/\omega}{1/k} = \frac{k}{\omega}$$

$$\Rightarrow \tan 100^\circ = \frac{\sqrt{1/\omega}}{1/k}$$



$$kBN = \omega NC \rightarrow \frac{k}{\omega} BN = NC$$

سؤال ٩

$$S_{ABC} = k S_{BMN}$$

$$\frac{1}{k} AB \times BC \times \sin B = k \times \frac{1}{k} \times BM \times BN \times \sin B$$

$$BC = BN + NC \Rightarrow BC = BN + \frac{k}{\omega} BN = \frac{\omega + k}{\omega} BN \quad AB \times \frac{\omega}{k} = k BM$$

$$AB = AM + BM \Rightarrow \frac{\omega + k}{\omega} BM - BM = AM \Rightarrow AM = \frac{k}{\omega} BM \quad AB = \frac{\omega + k}{\omega} BM$$

$$\Rightarrow \frac{BM}{AM} = \frac{BM}{\frac{k}{\omega} BM} = \frac{\omega}{k}$$

$$\frac{1}{\sqrt{\cos \alpha}} - \tan \alpha = \frac{1 + \sin \alpha}{|\cos \alpha|}$$

سؤال ١٠

$$\frac{1}{\sqrt{\cos \alpha}} = \frac{1}{\cos \alpha} \quad \text{ب} \quad \frac{-1}{\cos \alpha}$$

$$\frac{1}{\sqrt{\cos \alpha}} - \tan \alpha = \frac{1}{\cos \alpha} \quad \frac{1}{\cos \alpha} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 - \sin \alpha}{\cos \alpha} \rightarrow \text{مقسوم}$$

$$\frac{1 - \sin \alpha}{\cos \alpha} = \frac{-1}{\cos \alpha} \quad \frac{1 - \sin \alpha}{\cos \alpha} = \frac{-1}{\cos \alpha} \Rightarrow \cos \alpha < 0$$

$$\Rightarrow \sin \alpha, \cos \alpha < 0$$

في ربع ثانی

$$\cos^2 \alpha = 1 - \sin^2 \alpha \rightarrow \cos \alpha = 1 - \left(\frac{\sqrt{r}}{1}\right)^2 = 1 - \frac{r}{1} = \frac{1-r}{1} \xrightarrow[\cos \alpha < 0]{r < 1} \cos \alpha = -\frac{\sqrt{r}}{1}$$

$$\cos\left(\frac{11\pi}{6} + \alpha\right) = \cos\left(\pi - \frac{\pi}{6} + \alpha\right) = -\cos\left(\alpha - \frac{\pi}{6}\right)$$

$$-\left(\frac{\sqrt{r}}{1} \times \cos \alpha + \frac{\sqrt{r}}{1} \sin \alpha\right) = -\frac{\sqrt{r}}{1} \left(-\frac{\sqrt{r}}{1} + \frac{\sqrt{r}}{1}\right) = -\frac{1}{\sqrt{r}} \times \frac{-r\sqrt{r}}{1} = \boxed{\frac{r}{1}}$$