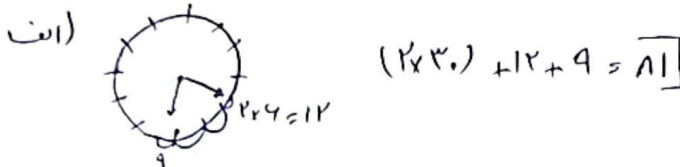


۱

ب) $\alpha = |15/15 \text{ rad} - 3.14|$
 $\alpha = |2.94 - 3.14|$
 $\alpha = |2.94 - 3.14| = 0.2$ $3.14 - 2.94 = 0.2$ 153°



۲

ب) $\alpha = |15/15 \times 180 - 3.14 \times 180|$
 $\alpha = |-11|$ $\alpha = 11^\circ$

الف) $S = \frac{\alpha}{r} R^2$ $\frac{\pi}{4} \times \frac{1}{4} \times 4 \times 4 = \frac{\pi}{4}$

۳

ب) $P = \alpha R = \frac{\pi}{4} \times 4 = \frac{\pi}{4} + 4$

الف) $\frac{1}{2} \times \omega \times \lambda \times \sin \phi = \frac{1}{2} \times \omega \times \lambda \times \frac{\sqrt{2}}{2} = \frac{1}{2} \sqrt{2}$

ب) $BC^2 = \omega^2 + \lambda^2 - 2(\omega \times \lambda)(\cos \phi) = 2\omega^2 + 4\lambda^2 - (2\omega \times \lambda) = 49 \rightarrow BC = 7$
 $123 = \omega + \lambda + 7 = 20$

۴

$\frac{1\omega}{\sin A} = \frac{1\omega\sqrt{2}}{\sin B} = \frac{2\omega}{\sin C}$ $3\omega = \frac{1\omega\sqrt{2}}{\sin B}$ $\sin B = \frac{1\omega\sqrt{2}}{3\omega} = \frac{\sqrt{2}}{3}$ $\frac{1}{B} \times \omega = \frac{\pi}{3}$
 $\hat{B} + \hat{C} = 180^\circ$ $\hat{C} = 180^\circ - \hat{B} = 180^\circ - 60^\circ = 120^\circ$
 $\hat{C} = 120^\circ = \frac{2\pi}{3}$

۵

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

sin, cos ≠ 0

9

$$A = \frac{r \tan\left(\frac{\pi}{r} - \frac{\pi}{1r}\right) + \tan\left(\frac{\pi}{r} + \frac{\pi}{1r}\right)}{r \tan\left(\pi - \frac{\pi}{1r}\right) - \tan\left(\frac{r\pi}{r} - \frac{\pi}{1r}\right)}$$

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

Y

$$\frac{(\sin u + \cos u)(\sin u + \cos u) + (\sin u - \cos u)(\sin u - \cos u)}{(\sin u - \cos u)(\sin u + \cos u)}$$

$$\frac{\sin^2 u + \cos^2 u + \cancel{\cos u \sin u} + \cancel{\sin u \cos u} + \sin^2 u - \cos^2 u - \cancel{\cos u \sin u} - \cancel{\sin u \cos u}}{\sin^2 u - \cos^2 u} = \frac{2\sin^2 u}{\sin^2 u - \cos^2 u} = r$$

Λ

$$r = r \sin^2 u - r(1 - \sin^2 u) \Rightarrow r = r \sin^2 u - r + r \sin^2 u \quad \Delta = 4 \sin^2 u \quad \sin^2 u = \frac{\Delta}{4} \quad \tan^2 u = \frac{\Delta}{4} \Rightarrow \Delta = 4 \tan^2 u$$

$$\frac{1 - \cos^2 u - r \cos^2 u + 1}{1 - \cos^2 u + r \cos^2 u - 1} = f \quad \frac{r - r \cos^2 u}{\cos^2 u} = f \quad r - r \cos^2 u = f \cos^2 u$$

$$r = r \cos^2 u \quad \cos^2 u = \frac{r}{r} \quad \sin^2 u = 1 - \frac{r}{r} = \frac{\Delta}{r}$$

$$\tan^2 u = \frac{\frac{\Delta}{r}}{\frac{r}{r}} = \frac{\Delta}{r}$$

9

$$\text{a) } \cos^2 \alpha = \frac{1 + \cos 2\alpha}{2} \quad \cos^2\left(\frac{r}{\omega}\right) = \frac{1 + \cos \frac{r}{\omega}}{2} = \frac{r + \sqrt{r}}{r} = \frac{r + \sqrt{r}}{r} \Rightarrow$$

$$\cos \frac{r}{\omega} = \frac{\pm \sqrt{r + \sqrt{r}}}{r} = \frac{\sqrt{r + \sqrt{r}}}{r}$$

$$\text{b) } \sin^2 \alpha = 1 - \cos^2 \alpha \quad \sin^2\left(\frac{r}{\omega}\right) = \frac{1 - \cos \frac{r}{\omega}}{2} = \frac{r - \sqrt{r}}{r} = \frac{r - \sqrt{r}}{r} \Rightarrow$$

$$\sin \frac{r}{\omega} = \frac{\pm \sqrt{r - \sqrt{r}}}{r} = \frac{\sqrt{r - \sqrt{r}}}{r}$$

1.