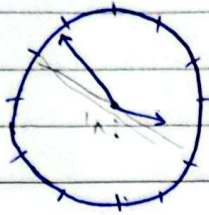


مسئله ۱۱

په نظام اد

الف



۳:۵۴

مسئله ۱۱
الف

$$\frac{54^\circ}{2} = 27^\circ$$

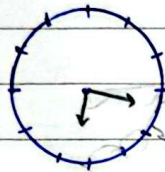
$$180^\circ - 27^\circ = 153^\circ$$

$$180^\circ + 27^\circ + 3^\circ = 210^\circ$$

$$\frac{r}{a} = \frac{27^\circ}{153^\circ}$$

$$اب \quad |15/5m - 3.H| = \left| \frac{55}{10} \times 27 - 9.7 \right| = 2.7^\circ$$

۹:۱۸



$$\frac{r}{a} = \frac{18^\circ}{3^\circ}$$

$$\frac{18}{3} = 6$$

$$4^\circ + 9^\circ + 11^\circ = 24^\circ$$

الف

$$ج \quad |15/5m - 3.H| = \left| \frac{55}{10} \times 11 - 9.9 \right| = 11^\circ$$

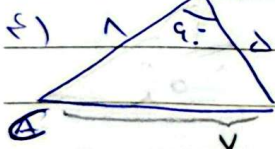
۲)

$$\alpha = \frac{\pi}{4} \quad S = \frac{\alpha}{r} R^2 = \frac{\frac{\pi}{4}}{r} \times 9 = \frac{\pi}{4} \times 9 = \frac{9\pi}{4}$$

R = 3cm

$$\text{مسئله ۱۱} \quad \alpha \times R = \frac{\pi}{4} \times 3 = \frac{3\pi}{4}$$

$$\frac{\pi}{2} + 3 + 3 = 4 + \frac{\pi}{2} \rightarrow \text{مسئله ۱۱}$$



$$S = \frac{1}{2} \times AB \times AC \times \sin 45^\circ = \frac{1}{2} \times 4 \times 3 \times \frac{\sqrt{2}}{2} = 3\sqrt{2}$$

$$a = \sqrt{c^2 + b^2 - 2cb \cos A} = \sqrt{4^2 + 3^2 - 2 \times 4 \times 3 \times \frac{1}{2}} = \sqrt{13} = \sqrt{13}$$

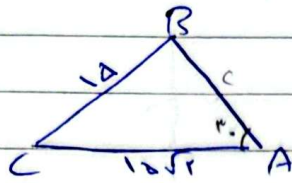
$$P = a + b + c = 4 + 3 + 3 = 10$$

حل المسألة

المطلوب

2)

$$\hat{B} + \hat{C} = 180^\circ$$



$$AC = 18\sqrt{r}$$

$$BC = 18$$

$$\hat{B} = ?$$

$$\hat{C} = ?$$

$$\frac{\sin A}{a} = \frac{\sin C}{c} = \frac{\sin B}{b}$$

$$\frac{1}{18} = \frac{\sin B}{18\sqrt{r}}$$

$$\frac{1}{r} \times 18\sqrt{r} = \frac{\sqrt{r}}{r} = \sin B \Rightarrow \hat{B} = 45^\circ = \frac{\pi}{4}$$

$$C = 180^\circ - 45^\circ = 135^\circ$$

$$\frac{18}{18} = \frac{\pi}{180^\circ \times \pi} \Rightarrow \frac{\sqrt{r}}{r} = \hat{C}$$

$$4) \tan(\pi - \alpha) + \tan(\pi + \alpha)$$

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

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

$$v) \tan \frac{\pi}{18} = a$$

$$r \tan 45^\circ + \tan 135^\circ = ?$$

$$r \tan 45^\circ - \tan 135^\circ$$

$$\frac{r \tan(\frac{\pi}{2} - 18^\circ) + \tan(\frac{\pi}{2} + 18^\circ)}{r \tan(\frac{\pi}{2} - 18^\circ) - \tan(\frac{\pi}{2} + 18^\circ)} = \frac{r \cot 18^\circ - \tan 18^\circ}{-r \tan 18^\circ - \cot 18^\circ} = \frac{\frac{r}{a} - \frac{1}{a}}{-\frac{r}{a} - \frac{1}{a}} = \frac{1}{a} = -\frac{1}{a}$$

$$\tan \frac{\pi}{18} = a$$

$$\cot \frac{\pi}{18} = \frac{1}{a}$$

$$\frac{\pi}{18} = 18^\circ$$

فرض کنیم

2)

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

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

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

$$\sin^2 \alpha = 1 - \sin^2 \alpha$$

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

$$\tan^2 \alpha = \frac{\sin^2 \alpha}{\cos^2 \alpha} = \frac{\frac{r}{4}}{\frac{1}{4}} = r$$

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

$$\frac{r}{4} + \cos^2 \alpha = 1$$

$$\cos^2 \alpha = \frac{4-r}{4}$$

$$1 - \cos^2 \alpha = r \cos^2 \alpha + 1$$

$$9) \frac{\sin^2 \alpha - r \cos^2 \alpha + 1}{\sin^2 \alpha + r \cos^2 \alpha - 1} = r$$

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

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

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

$$\frac{\frac{r}{4}}{\frac{1}{4}} = \frac{r}{1}$$

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

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

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

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

$$10) \cos(r/r/d)$$

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

$$\cos r/r/d = \frac{\sqrt{r + \sqrt{r}}}{r}$$

$$r/r/d + 4/r/d = 9$$

$$\sin^2 \alpha (4/r/d)$$

$$= \sqrt{\frac{r + \sqrt{r}}{r}}$$

$$\sin^2 \left(90^\circ + r/r/d \right) = \cos r/r/d$$

Parsian