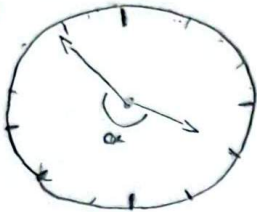


دالف



$$(4 \times 30) + 2V + 4 = 100$$

د ب $\alpha = |8.5 \times 30 - 30 \times 4| = |255 - 120| = 135$
 $= 135$
 $\Rightarrow \text{زاویه بین عقربه‌ها} = 360 - 135 = 225$

۱

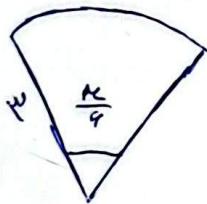
الف

$$(4 \times 30) + 9 + 1V = 111$$



د ب $\alpha = |12.5 \times 30 - 30 \times 4| = 111$

۲

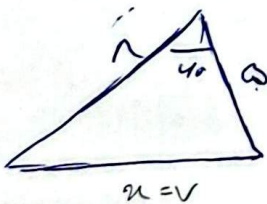


$$s = \frac{r}{4} \times \frac{1}{4} \times 90 = \frac{3r}{4}$$

الف

ب $P = \left(\frac{r}{4} \times \frac{1}{4}\right) + 4r = \frac{r}{4} + 4$

۳



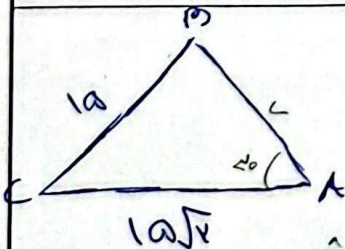
$$u = v$$

الف $s = \omega \times r \times \frac{r}{4} \times \frac{1}{4} = 10\sqrt{3}$

ب $u = \sqrt{4^2 + 3^2} = 5$
 $= \sqrt{5^2} = 5$

$$\Rightarrow P = v + \omega + 1 = 10$$

۴



$$\hat{B} + \hat{C} = 180 - \frac{10}{2} = \frac{10\sqrt{2}}{\sin B} = \frac{C}{\sin C} \Rightarrow \frac{10}{2} = \frac{10\sqrt{2}}{\sin B}$$

$$\Rightarrow \sin B = \frac{\sqrt{2}}{2} \quad \hat{B} = 45^\circ \quad \checkmark$$

$$\hat{B} = 135^\circ \quad \text{قانون سینوس}$$

$$\hat{B} = 45^\circ, \quad C = 100^\circ$$

$$\hat{B} = \frac{r}{2}, \quad C = \frac{10}{2}$$

۵

$$\frac{\tan(K-\alpha) + \sqrt{e} \tan(K+\alpha)}{\tan(K-\alpha) - \tan(K+\alpha)} = \frac{-\tan \alpha + \sqrt{e} \tan \alpha}{\tan \alpha - \tan \alpha} = \frac{\sqrt{e} \tan \alpha}{-\sqrt{e} \tan \alpha}$$

$$= -1$$

8

$$\frac{K}{V} = 10^\circ \Rightarrow \tan 10^\circ = a$$

$$\frac{\sqrt{e} \tan 10^\circ + \tan 10^\circ}{\sqrt{e} \tan 10^\circ - \tan 10^\circ} = \frac{\sqrt{e} \tan(\frac{K}{V} - 10^\circ) + \tan(\frac{K}{V} + 10^\circ)}{\sqrt{e} \tan(\frac{K}{V} - 10^\circ) - \tan(\frac{K}{V} + 10^\circ)}$$

9

$$\frac{\sqrt{e} \cot 10^\circ + \cot 10^\circ}{-\sqrt{e} \tan 10^\circ - \cot 10^\circ} = \frac{1}{a} = \frac{1}{\frac{1}{\sqrt{e} a^2 - 1}} = \frac{1}{\sqrt{e} a^2 - 1}$$

$$\frac{\sin x + \cos x}{\sin x - \cos x} + \frac{\sin x - \cos x}{\sin x + \cos x} = e \Rightarrow \frac{(\sin x + \cos x)^2 + (\sin x - \cos x)^2}{\sin^2 x - \cos^2 x} = e$$

$$\Rightarrow \frac{e}{\sin^2 x - \cos^2 x} = e \Rightarrow \sin^2 x - \cos^2 x = \frac{e}{e}$$

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

$$\sin^2 x = \frac{e}{e}$$

$$\cos^2 x = \frac{1}{e}$$

10

$$\Rightarrow \tan^2 x = a$$

$$\frac{\sin^2 x - \cos^2 x + 1}{\sin^2 x + \cos^2 x + 1} = e \xrightarrow{\sin^2 x = 1 - \cos^2 x} \frac{1 - \cos^2 x - \cos^2 x + 1}{1 - \cos^2 x + \cos^2 x + 1} = e$$

$$\Rightarrow \frac{2 - 2\cos^2 x}{2} = e \Rightarrow 2\cos^2 x = 2 - 2\cos^2 x \Rightarrow \cos^2 x = \frac{e}{2}$$

$$\sin^2 x = \frac{1}{2} \Rightarrow \tan^2 x = \frac{e}{1}$$

11

$$\cos(4V/10) = \cos^4 \alpha = \frac{1 + \cos 2\alpha}{2} \Rightarrow \cos^4 \alpha = \frac{1 + \frac{1}{e}}{2}$$

$$\Rightarrow \cos^4 \alpha = \frac{1 + \sqrt{e}}{2} = \frac{\sqrt{1+e}}{2}$$

12

$$\sin(4V/10) = \sin^4 \alpha = \frac{1 - \cos 2\alpha}{2} \Rightarrow \sin^4 \alpha = \frac{1 - \frac{1}{e}}{2}$$

$$\Rightarrow \sin^4 \alpha = \frac{\sqrt{1-e}}{2}$$