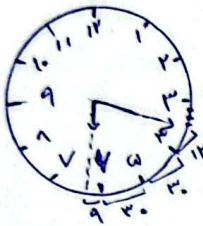


$30^\circ \rightarrow 30^\circ$
 $40^\circ \rightarrow 40^\circ$
 $20^\circ \rightarrow 20^\circ$
 $\Delta F \times d = 32^\circ \Rightarrow 340 - 324 = 34$
 $44^\circ = 4 + 3 \times 30 + 22 = 123$ (انف)

$\rightarrow) : |(a/d \times d) - (30 \times 3)| = 2.7 \rightarrow 340 - 2.7 = 123$



$4: 18'$
 $4 \times 20 - 4 \times 18 = 12^\circ$
 $\frac{340}{40} = 4 \rightarrow \text{مردیبه} = 4^\circ$
 $\frac{340}{12} = 30 \rightarrow \text{مردیبه} = 30^\circ$
 $4, 9 + 30 + 20 + 12 = 111$ (انف)

$\rightarrow) : |(a/d \times m - 30 \times h)| = |(b/d \times 18) - (30 \times 4)| = 111$

$S = \frac{\alpha}{r} \times R^2 = \frac{\pi}{4} \times 3^2 = \frac{\pi}{12} \times 9 = \frac{3\pi}{4}$ (انف)

$\text{مساحت} = \widehat{AB} + 2R = \alpha R + 2R = \frac{\pi}{4} \times 3 + \frac{2 \times 3}{4} = 4 + \frac{\pi}{4}$

$S_{ABC} = \frac{1}{2} \times AB \times AC \times \sin A = \frac{1}{2} \times 10 \times 10 \times \frac{\sin 40^\circ}{\frac{\sqrt{3}}{2}} = 10 \times \frac{10}{\sqrt{3}} = 10\sqrt{3}$ (انف)

$BC = \sqrt{a^2 + b^2 - 2ab \cos A} = \sqrt{1^2 + 1^2 - 2(1)(1) \frac{\cos 40^\circ}{\frac{\sqrt{3}}{2}}} = \sqrt{4} = 2$

$\text{مساحت} = \widehat{AB} + \widehat{AC} + \widehat{BC} = \omega + \alpha + \nu = 20$

$\hat{B} + \hat{C} = 180^\circ \rightarrow \hat{A} = 180^\circ - 180^\circ = 0^\circ$

$\frac{BC}{\sin \hat{A}} = \frac{AC}{\sin \hat{B}} = \frac{AB}{\sin \hat{C}}$

$\text{②} \rightarrow AB \Rightarrow \hat{C} + \hat{B} = 180^\circ \rightarrow \hat{C} + 40^\circ = 180^\circ$
 $\Rightarrow \frac{10}{180} = \frac{x}{\pi} \Rightarrow x = \frac{x \times 10}{180} \Rightarrow \hat{C} = \frac{10\pi}{180}$

$\text{①} \rightarrow \frac{10}{\frac{1}{\sqrt{3}}} = \frac{10\sqrt{3}}{\sin \hat{B}} \Rightarrow \sin \hat{B} = \frac{10\sqrt{3} \times \frac{1}{\sqrt{3}}}{10} = \frac{\sqrt{3}}{2} \Rightarrow \hat{B} = 60^\circ = \frac{\pi}{3}$

$$\left. \begin{aligned} & \frac{\tan(x-\alpha) + r \tan(x+\alpha)}{\tan(rx-\alpha) - \tan(rx+\alpha)} \end{aligned} \right\}$$

$$\Rightarrow \tan(x-\alpha) = -\tan \alpha$$

$$\Rightarrow r \tan(x+\alpha) = r \tan \alpha$$

$$\Rightarrow \tan(rx-\alpha) = -\tan \alpha$$

$$\Rightarrow \tan(rx+\alpha) = \tan \alpha$$

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

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$$\frac{x}{r} = 10^\circ$$

$$\tan r\omega^\circ = \tan\left(90 - 10\right) = \cot 10^\circ$$

$$\tan 10\omega^\circ = \tan(90 + 10) = -\cot 10^\circ$$

$$\tan 14\omega^\circ = \tan(180 - 10) = -\tan 10^\circ$$

$$\tan r\omega^\circ = \tan(180 + r\omega) = \tan(r\omega) = \cot 10^\circ$$

$$\Rightarrow \frac{r \times \frac{1}{a} - \frac{1}{a}}{-ra - \frac{1}{a}} = \frac{\frac{1}{a}}{-ra + \frac{1}{a}} = \frac{-1}{ra + 1}$$

$$A = \frac{r \tan r\omega^\circ + \tan 10\omega^\circ}{r \tan 10\omega^\circ - \tan r\omega^\circ}$$

$$\Rightarrow \frac{r(\cot 10^\circ - \cot 10^\circ)}{-r \tan 10^\circ - \cot 10^\circ}$$

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$$\Rightarrow \frac{(\sin x + \cos x)(\sin x + \cos x) + (\sin x - \cos x)(\sin x - \cos x)}{(\sin x - \cos x)(\sin x + \cos x)} \quad \left| \frac{\sin rx - 1 - \cos rx}{r(\sin rx + \cos rx)} \right|$$

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

$$\Rightarrow r - r \cos^2 x = r \Rightarrow \cos^2 x = \frac{1}{r} \Rightarrow \sin^2 x = 1 - \frac{1}{r} = \frac{r-1}{r}$$

$$\tan rx = \frac{\sin rx}{\cos rx} = \frac{\frac{a}{r}}{\frac{1}{r}} = a$$

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

$$\Rightarrow r \cos^2 x = r - r \cos^2 x \Rightarrow r \cos^2 x = r \Rightarrow \cos^2 x = \frac{r}{r} \Rightarrow \sin^2 x = 1 - \frac{r}{r} = \frac{a}{r}$$

$$\tan rx = \frac{\sin rx}{\cos rx} = \frac{\frac{a}{r}}{\frac{r}{r}} = \frac{a}{r} \quad \left[\text{c. r. l.} \right]$$

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$$\text{الف) } \left. \begin{aligned} \cos(rx/a) &= \cos\left(\frac{r\theta}{r}\right) \\ \cos\left(\frac{\theta}{r}\right) &= \sqrt{\frac{1 + \cos \theta}{2}} \end{aligned} \right\} \Rightarrow \frac{\sqrt{1 + \frac{\sqrt{r}}{r}}}{r} = \frac{\sqrt{r + \sqrt{r}}}{r}$$

$$\text{ب) } \cos, \sin \Rightarrow 4r/a + rx/a = 90^\circ \Rightarrow \sin(4r/a) = \cos(rx/a) = \frac{\sqrt{r + \sqrt{r}}}{r}$$

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