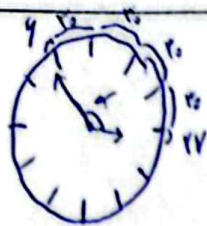


الف)



$$\alpha = \frac{360}{12} \times 10 + 10 = 103^\circ$$

ب) $\alpha = |8,8m - 30h| = |8,8 \times 10 - 30 \times 10| = 103^\circ$

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الف)



$$\alpha = 40 + 11 = 11^\circ$$

ب) $\alpha = |8,8m - 30h| = |8,8 \times 11 - 30 \times 11| = 11^\circ$

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الف) $S = \frac{\pi}{r} R^2 = \frac{\pi}{\frac{r}{1}} \times 3^2 = \frac{\pi}{\frac{r}{1}} \times 9 = \frac{9\pi}{r} \text{ cm}^2$

ب) $2P = \overline{AB} + r + r = \frac{\pi}{r} \times r + 4 = \frac{\pi}{r} + 4 \text{ cm}$

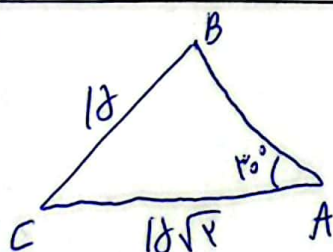
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الف) $S = \frac{1}{2} \times 8 \times 10 \times \sin 40^\circ = 40 \times \frac{\sqrt{2}}{2} = 10\sqrt{2}$

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ب) $a = \sqrt{b^2 + c^2 - 2bc \cos A} = \sqrt{4^2 + 2^2 - 2 \times 4 \times 2 \times \frac{1}{2}} = \sqrt{4} = 2$

$2P = 1 + 2 + 2 = 5$



$$\hat{B} + \hat{C} = 180^\circ \quad A = 30^\circ$$

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

$$\frac{10}{\frac{1}{2}} = \frac{10\sqrt{2}}{\sin B}$$

$$\sin B = \frac{\sqrt{2}}{2} \Rightarrow B = 45^\circ = \frac{\pi}{4}$$

$$C = 180^\circ - 30^\circ - 45^\circ = 105^\circ$$

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$$\frac{\tan(x-a) + r \tan(x+a)}{\tan(rx-a) - \tan(rx+a)} = \frac{-\tan a + r \tan a}{-\tan a - \tan a} = \frac{r \tan a}{-r \tan a} = -1$$

6

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

7

$$\tan \frac{x}{r} = a \Rightarrow \tan 1\delta = a$$

$$\frac{r \cot 1\delta - \cot 1\delta}{-r \tan 1\delta - \cot 1\delta} = \frac{\cot 1\delta}{-r \tan 1\delta - \cot 1\delta} = \frac{1}{-ra - \frac{1}{a}} = \frac{\frac{1}{a}}{-ra - \frac{1}{a}} = \frac{-1}{ra^2 + 1}$$

$$\frac{\sin x + \cos x}{\sin x - \cos x} + \frac{\sin x - \cos x}{\sin x + \cos x} = r \quad \tan^r x = ?$$

$$\frac{\tan x + 1}{\tan x - 1} + \frac{\tan x - 1}{\tan x + 1} = r \quad \frac{(\tan x + 1)^r + (\tan x - 1)^r}{\tan^r x - 1} = r$$

8

$$\frac{r \tan^r x + 1}{\tan^r x - 1} = \frac{r(\tan^r x + 1)}{\tan^r x - 1} = r \quad r \tan^r x + 1 = r \tan^r x - 1 \quad \tan^r x = 2$$

$$\frac{\sin^r x - r \cos^r x + 1}{\sin^r x + r \cos^r x - 1} = r \quad \tan^r x = ? \quad \tan^r x = \frac{\sin^r x}{\cos^r x} = \frac{\frac{d}{V}}{\frac{r}{V}} = \frac{d}{r} = \frac{1}{r} d$$

9

$$\frac{\sin^r x - r(1 - \sin^r x) + 1}{\sin^r x + r(1 - \sin^r x) - 1} = r \quad \frac{\sin^r x - r + r \sin^r x + 1}{\sin^r x + r - r \sin^r x - 1} = r$$

$$\frac{r \sin^r x - 1}{-\sin^r x + 1} = r \quad r \sin^r x - 1 = -r \sin^r x + r \quad V \sin^r x = d \quad \sin^r x = \frac{d}{V} \quad \cos^r x = 1 - \frac{d}{V} = \frac{r}{V}$$

$$\text{الف) } \cos(r, \delta) = \frac{\sqrt{r+Vr}}{r} \quad \cos^r x = \frac{1 + \cos^r x}{r} = \frac{1 + \frac{r}{V}}{r} = \frac{r+Vr}{r}$$

$$\cos x = \frac{\sqrt{r+Vr}}{r}$$

10

$$\therefore \sin(r, \delta) = \cos^r x = \frac{\sqrt{r+Vr}}{r}$$