

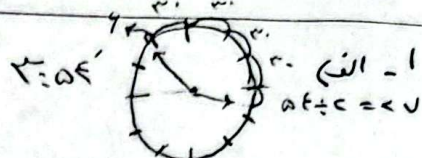
20

$$a = |a_1 a_m - r_0 h| \text{ (ب)}$$

$$a = |a_1 a \times a^r - r_0 \times r| =$$

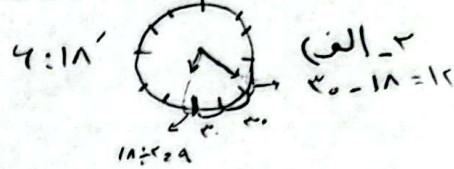
$$|1297 - 90| = 1207 \rightarrow \text{زاد بزرگتر}$$

$$340 - 207 = 133 \rightarrow \text{زاد بزرگتر}$$



$$4 \times 30 + 4 \times 30 = 120$$

$$a = |a_1 a \times 11 - r_0 \times 4| = 111 \quad a = |a_1 a_m - r_0 h| \text{ (ب)}$$



$$340 - 111 = 229 \rightarrow \text{زاد بزرگتر}$$

$$40 + 15 + 9 = 64$$

$$P = aR + rR = \frac{\pi}{r} \times r + r \times r \text{ (ب)}$$

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

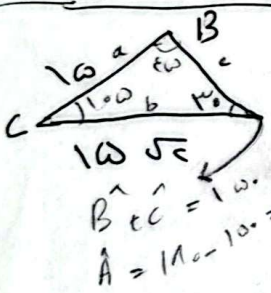
$$S = \frac{a}{r} \times R^2 = \frac{\pi}{12} \times 9 = \frac{3\pi}{4} \text{ (الف)}$$

$$P = a + b + c$$

$$BC = a \rightarrow x = \sqrt{a^2 + 11^2 - 2 \times a \times 11 \times \cos 40^\circ}$$

$$S = \frac{1}{2} ab \sin \theta = \frac{1}{2} \times a \times 11 \times \sin 40^\circ = 10.13 \text{ (الف)}$$

$$\Rightarrow x = \sqrt{49} = 7 \Rightarrow p = a + 11 + 7 = 20$$



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

$$\frac{10}{\sin 110} = \frac{10\sqrt{2}}{\sin B} \Rightarrow \sin B = \frac{\sqrt{2}}{2} \Rightarrow B = 45^\circ$$

$$A + B + C = 180 \Rightarrow C = 25^\circ \Rightarrow \frac{10 \times 10}{11} = \frac{100}{11}$$

$$\frac{\tan 10^\circ + \tan 10^\circ}{\tan 10^\circ - \tan 10^\circ} = \frac{\tan(\frac{\pi}{2} - 10^\circ) + \tan(\frac{\pi}{2} + 10^\circ)}{\tan(\pi - 10^\circ) - \tan(\frac{\pi}{2} - 10^\circ)}$$

$$= \frac{\cot 10^\circ - \cot 10^\circ}{-\cot 10^\circ - \cot 10^\circ} = \frac{0}{-2\cot 10^\circ} = 0$$

$$\frac{-\tan a + \tan a}{-\tan a - \tan a} = \frac{0}{-2\tan a} = 0$$

$$\tan 10^\circ \times \cot 10^\circ = 1$$

$$\Rightarrow \tan 10^\circ = \frac{1}{\cot 10^\circ} \quad \cot 10^\circ = \frac{1}{\tan 10^\circ}$$

$$= \frac{-\frac{1}{a}}{\frac{1}{a} + 1} = -\frac{1}{a} \times \frac{a}{1 + a} = \frac{-1}{1 + a}$$

$$\frac{\sin x + \cos x}{\sin x - \cos x} + \frac{\sin x - \cos x}{\sin x + \cos x} = 2$$

تقسیم بر $\cos x$ ، عا

$$\frac{\tan x + 1}{\tan x - 1} + \frac{\tan x - 1}{\tan x + 1} = \frac{\tan^2 x + 1 + \tan^2 x + \tan^2 x - 1 - \tan^2 x}{\tan^2 x - 1}$$

$$\frac{\tan^2 x + 1}{\tan^2 x - 1} = 2$$

$$\Rightarrow \tan^2 x = 1$$

$$\frac{\sin^2 x - 2\cos^2 x + 1}{\sin^2 x + \cos^2 x - 1} = 2 \quad \text{و} \quad \tan^2 x = 1$$

تقسیم بر $\cos^2 x$ ، عا

$$\frac{\tan^2 x - 2 + \frac{1}{\cos^2 x}}{\tan^2 x + 1 - \frac{1}{\cos^2 x}} = \frac{2\tan^2 x - 1}{1}$$

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

الف) $\cos(45^\circ) =$

$$\cos^2 x = \frac{1 + \cos^2 x}{2} \Rightarrow \frac{1 + \frac{\sqrt{2}}{2}}{2} = \frac{2 + \sqrt{2}}{4} \Rightarrow \cos(45^\circ) = \frac{\sqrt{2} + \sqrt{2}}{2}$$

ب) $\sin(45^\circ) =$

چون می‌توان گفت $\sin$ یکی از زوایا ، $\Rightarrow$ یعنی می‌تواند $\Rightarrow 45^\circ + 45^\circ = 90^\circ$ $\cos$ زاویه دیگر است

$$\sin(45^\circ) = \cos(45^\circ) = \frac{\sqrt{2} + \sqrt{2}}{2}$$