

بلیت انوری دم B

سؤال ١:

(الف)

(ب)



$$3:54' \quad 4 \times 30 + 12 + 4 = 154^\circ$$

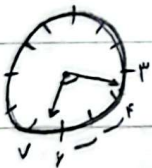
$$\frac{54}{6} = 9 \rightarrow 54 - 27 = 27$$

$$|5:54 - 3:00| \Rightarrow 11 \times 27 - 90 = 207^\circ$$

$$\Rightarrow 90 - 11 \times 27 = -207^\circ = 153^\circ \quad \checkmark \text{ زاویه کوچکتر}$$

سؤال ٢: (الف)

(ب)



$$4:18' \quad 2 \times 30 + 2 \times 4 + 9 = 81^\circ$$

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

$$|5:54 - 3:00| \rightarrow 3 \times 4 - 5 \times 18 = 81^\circ$$

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

سؤال ٣:

$$(ب) 2R + \widehat{AB} = 4 + \left(\frac{\pi}{4} \times 3\right) = 4 + \frac{\pi}{4} \text{ cm}$$

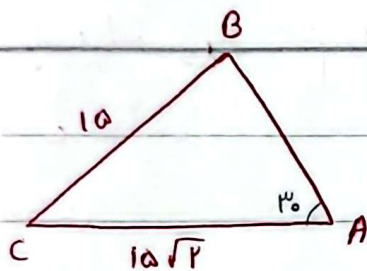
$$(الف) S_{\triangle ABC} = \frac{1}{2} \times 10 \times 5 \times \sin 40^\circ = 10\sqrt{3} \text{ cm}^2$$

سؤال ٤:

$$(ب) P = a + b + c = 5 + 11 + \alpha' = 20$$

$$\alpha = \sqrt{24 + 25 - 20 \times \frac{1}{2} \times 1} = 7$$

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

سؤال ٥ :

$$\sin \text{ قانون : } \frac{\sin A}{10} = \frac{\sin B}{10\sqrt{2}} \rightarrow \frac{1}{30} = \frac{\sin B}{10\sqrt{2}} \rightarrow \sin B = \frac{10\sqrt{2}}{30} = \frac{\sqrt{2}}{3} \Rightarrow \hat{B} = 45^\circ$$

$$\hat{C} = 180 - (45 + 30) = 180 - 75 = 105^\circ$$

$$\frac{\tan(\pi - \alpha) + 3\tan(\pi + \alpha)}{\tan(\pi - \alpha) - \tan(\pi + \alpha)} = \frac{-\tan \alpha + 3\tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{2\tan \alpha}{-2\tan \alpha} = -1$$

سؤال ٦ :

$$A = \frac{2\tan 75^\circ + \tan 105^\circ}{3\tan 145^\circ - \tan 15^\circ} =$$

سؤال ٧ :

$$\tan 75^\circ = \tan(30^\circ + 45^\circ) = \frac{\frac{\sqrt{3}}{3} + 1}{1 - \frac{\sqrt{3}}{3}} = \frac{3 + \sqrt{3}}{3 - \sqrt{3}}, \quad \tan 155^\circ = (135^\circ + 20^\circ) = \frac{1 + \frac{\sqrt{3}}{3}}{1 - \frac{\sqrt{3}}{3}} = \frac{3 + \sqrt{3}}{3 - \sqrt{3}}$$

$$\tan 105^\circ = \tan(45^\circ + 60^\circ) = \frac{1 + \sqrt{3}}{1 - \sqrt{3}}, \quad \tan 145^\circ (135^\circ + 10^\circ) = \frac{-1 + \frac{\sqrt{3}}{3}}{1 + \frac{\sqrt{3}}{3}} = \frac{-\sqrt{3} - 1}{\sqrt{3} + 1}$$

$$\Rightarrow \tan A = \frac{2\left(\frac{3 + \sqrt{3}}{3 - \sqrt{3}}\right) + \left(\frac{1 + \sqrt{3}}{1 - \sqrt{3}}\right)}{3\left(\frac{-\sqrt{3} - 1}{\sqrt{3} + 1}\right) - \left(\frac{3 + \sqrt{3}}{3 - \sqrt{3}}\right)} =$$

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$$\frac{\sin x + \cos x}{\sin x - \cos x} + \frac{\sin x - \cos x}{\sin x + \cos x} = \mu \rightarrow \frac{(1 + \cancel{\mu \sin x \cos x}) + (1 - \cancel{\mu \sin x \cos x})}{\sin^2 x - \cos^2 x} = \text{سؤال ٨:}$$

$$\Rightarrow \frac{\mu}{-\cos^2 x} = \mu \rightarrow \cos^2 x = \frac{-\mu}{\mu} \rightarrow \tan^2 x = \frac{1 - \cos^2 x}{1 + \cos^2 x} = \frac{1 + \frac{\mu}{\mu}}{1 - \frac{\mu}{\mu}} = \omega$$

$$\frac{\sin^2 x - \mu \cos^2 x + 1}{\sin^2 x + \mu \cos^2 x - 1} = \mu \rightarrow \frac{\sin^2 x - \mu + \mu \sin^2 x + 1}{\sin^2 x + \mu - \mu \sin^2 x - 1} = \mu \quad \text{سؤال ٩:}$$

$$\frac{\mu \sin^2 x - 1}{-\sin^2 x + 1} = \mu \rightarrow \mu \sin^2 x - 1 = -\mu \sin^2 x + \mu \rightarrow \mu \sin^2 x = \omega \rightarrow \sin^2 x = \frac{\omega}{\mu}$$

$$\cos^2 x = 1 - \sin^2 x \rightarrow 1 - \frac{\omega}{\mu} = \frac{\mu}{\mu} \Rightarrow \tan^2 x = \frac{\omega}{\mu}$$

$$\text{الف) } \cos(2x, \omega) \Rightarrow \cos^2 x = \frac{1 + \cos^2 x}{\mu} \rightarrow \frac{1 + \frac{\sqrt{\mu}}{\mu}}{\mu} = \sqrt{1 + \sqrt{\mu}} \quad \text{سؤال ١٠:}$$

$$\text{ب) } \sin(2x, \omega) \Rightarrow \frac{1 - (-\frac{\sqrt{\mu}}{\mu})}{\mu} = \sqrt{1 + \sqrt{\mu}}$$