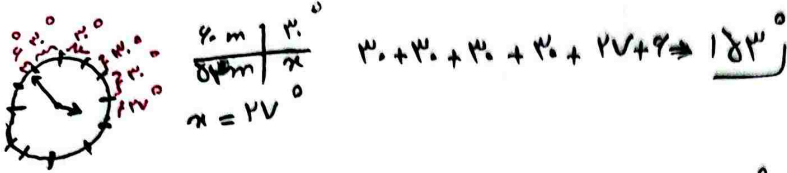


سؤال ۱۰

الف

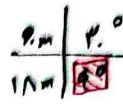


$$|3.0H - 0.5M| \Rightarrow |(3 \times 3) - (0.5 \times 0.5)| \Rightarrow 2.75^\circ \text{ و } 360^\circ - 2.75^\circ = 180^\circ$$

ب

$$3.0H - 0.5M \Rightarrow |(3 \times 9) - (0.5 \times 18)| \Rightarrow 11^\circ \text{ و } 249^\circ$$

$$3.0H - 0.5M \Rightarrow |(3 \times 9) - (0.5 \times 18)| \Rightarrow 11^\circ \text{ و } 249^\circ$$



سؤال ۱۱

$$\frac{\pi}{4} \leftarrow \frac{\pi}{4} \times 2 \leftarrow \alpha \cdot R \leftarrow \text{ب. محیط کمان} \quad S = \frac{3\pi}{4} \leftarrow \frac{\pi}{4} \times 4 \leftarrow \frac{\alpha}{4} R^2 \leftarrow \text{الف. مساحت قطاع}$$

سؤال ۱۲

$$r = 20 + 94 + (2 \times 0.5 \times 1 \times \frac{1}{2}) \Rightarrow 114.5 = 0.9 \Rightarrow m = \sqrt{0.9}$$

$$S = \frac{1}{2} \sin \alpha \cdot b \Rightarrow \frac{1}{2} \times \sqrt{0.9} \times 0.5 \times 1 = 0.045$$

سؤال ۱۳ از ۲ زاویه که جمع ۱۵۰ = B+C است نتیجه A = ۳۰ و با توجه به قانون سینوس ها

$$\frac{A}{a} = \frac{\sin B}{b} = \frac{\sin C}{c} \quad \frac{1}{r} = \frac{\sin B}{10\sqrt{r}} = \sin B = \sqrt{\frac{r}{10}} \Rightarrow B = 48^\circ \rightarrow B+C = 150 \Rightarrow C = 102^\circ$$

سؤال ۱۴

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

سؤال ۱۵

$$\frac{1}{r} = \frac{D}{10} \Rightarrow D = 10^\circ \quad \frac{r \tan(\frac{\pi}{4} - 10) + \tan(\frac{\pi}{4} + 10)}{r \tan(\pi - 10) + \tan(\frac{3\pi}{4} - 10)} = \frac{-r \cot 10 + \cot 10}{r \tan 10 - \cot 10} \Rightarrow \frac{-\frac{r}{a} + \frac{1}{a}}{ra - \frac{1}{a}} = \frac{-\frac{1}{a}}{\frac{ra^2 - 1}{a}} = \frac{-1}{ra^2 - 1}$$

سؤال ۱۶

$$\frac{(\sin^2 m + \cos^2 m)^r + (\sin^2 m - \cos^2 m)^r}{\sin^2 m - \cos^2 m} = \frac{\sin^2 m + \cos^2 m + r \sin^2 m \cos^2 m + \sin^2 m + \cos^2 m - r \sin^2 m \cos^2 m}{\sin^2 m + \cos^2 m} \Rightarrow \frac{r \sin^2 m + r \cos^2 m}{\sin^2 m - \cos^2 m} = \frac{r}{\sin^2 m - \cos^2 m}$$

$$\frac{\sin^2 m}{\cos^2 m} \Rightarrow \tan^2 m = 1$$

$$\frac{\sin^2 m - r \cos^2 m + 1}{\sin^2 m + r \cos^2 m - 1} \Rightarrow \frac{\sin^2 m - \cos^2 m}{\cos^2 m} \Rightarrow r \tan^2 m - 1 = t \Rightarrow \tan^2 \alpha = \frac{D}{r}$$

سؤال ۱۷

$$\cos^2 \alpha = \frac{1 + \cos 2\alpha}{2} \quad \sin^2 \alpha = \frac{1 - \cos 2\alpha}{2} \quad \sin^2 90/8 \Rightarrow \frac{1 - \cos 180}{2} \Rightarrow \frac{1 + 1}{2} \Rightarrow \sin^2 90/8 = \sqrt{\frac{1 + \sqrt{2}}{2}}$$

$$\cos^2 11/8 \Rightarrow \frac{1 + \cos 22}{2} \Rightarrow \frac{1 + \sqrt{2}}{2} \Rightarrow \cos^2 11/8 = \sqrt{\frac{1 + \sqrt{2}}{2}}$$

سؤال ۱۸