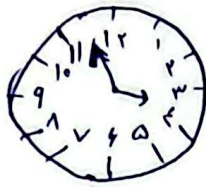


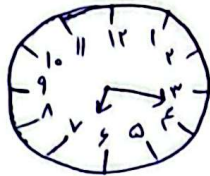
-1



$$36 + 30 + 30 + 30 + 27 = 153^\circ \quad (\text{الف})$$

$$a = |51.5m - 30h| = 20.7 \quad (\text{ب})$$

$$= 360 - 20.7 = 153^\circ$$



$$30 + 30 + 12 + 9 = 111^\circ \quad (\text{الف}) \quad -2$$

$$a = |51.5m - 30h| = 11^\circ \quad (\text{ب})$$

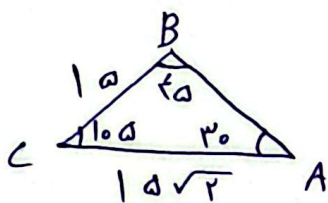
$$R^2 \frac{a}{r} = \frac{3}{4} \times \frac{\pi}{4} = \frac{3\pi}{4} \quad (\text{الف}) \quad -3$$

$$Ra = \frac{\pi}{r} \quad (\text{ب})$$

$$a \times \frac{1}{r} \times \frac{\sqrt{3}}{r} = 10\sqrt{3} \quad (\text{الف}) \quad -4$$

$$c = \sqrt{a^2 + b^2 - 2ab \cos \alpha} = \sqrt{16 + 25 - 40} = \sqrt{1} = 1 \quad (\text{ب})$$

$$\Rightarrow c = 1$$



$$\frac{\sin \hat{A}}{10} = \frac{\sin \hat{B}}{10\sqrt{2}} = \frac{1}{30} = \frac{\sqrt{2}}{30\sqrt{2}} \quad -5$$

$$\Rightarrow \hat{B} = 105^\circ, \hat{A} = 30^\circ, \hat{C} = 105^\circ$$

$$\hat{B} = 105^\circ \times \frac{\pi}{180} = \frac{7\pi}{12} \text{ Radian}, \hat{C} = 105^\circ \times \frac{\pi}{180} = \frac{7\pi}{12} \text{ Radian}$$

$$\frac{-\tan \alpha + 3 \tan \alpha}{-\tan \alpha - \tan \alpha} = -1 \quad -6$$

-V

$$\frac{r \tan\left(\frac{\pi}{r} - \frac{\pi}{1r}\right) + \tan\left(\frac{\pi}{r} + \frac{\pi}{1r}\right)}{r \tan\left(\pi - \frac{\pi}{1r}\right) + \tan\left(r\frac{\pi}{r} - \frac{\pi}{1r}\right)}$$

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

$$\frac{\sin^r n + \cos^r n + r \sin n \cos n + \sin^r n + \cos^r n - r \sin n \cos n}{\sin^r n - \cos^r n} = r \quad -1$$

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

$$\Rightarrow \sin^r n = \cos^r n \Rightarrow \tan^r n = 1$$

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

$$\Rightarrow r \sin^r n = \cos^r n \Rightarrow \tan^r n = \frac{1}{r}$$

$$\cos^r \alpha = \frac{1 + \cos^r \alpha}{r} \Rightarrow \cos^r \alpha = \sqrt{\frac{1 + \cos^r \alpha}{r}} = \sqrt{\frac{r + \sqrt{r}}{r}} = 1$$

$$\Rightarrow \cos^r \alpha = \frac{\sqrt{r + \sqrt{r}}}{r}$$

$$\cos^r \alpha = \frac{1 + \cos^r \alpha}{r} = \frac{1 - \sqrt{r}}{r} \Rightarrow \cos^r \alpha = \sqrt{\frac{1 - \sqrt{r}}{r}} = \frac{\sqrt{1 - \sqrt{r}}}{r}$$