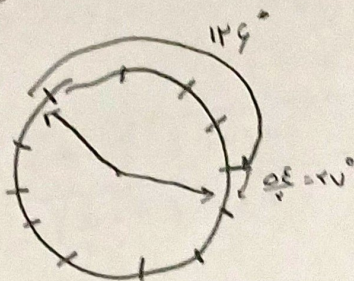


تكليف 19

19, x

سياه ناصب

3: 54'

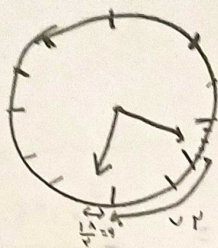


(الف - 1) $126^\circ + 27^\circ = 153^\circ$ ✓

$a = |5.5M - 3 \cdot H| \rightarrow 5.5 \times 54 - 3 \times 3 = 2.7$

$36. - 2.7 = 153^\circ$ ✓

9: 11'

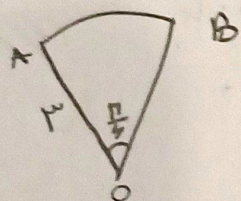


(الف - 2) ✓

$52 + 9 = 11^\circ$ ✓

$a = |5.5M - 3 \cdot H| \rightarrow |5.5 \times 11 - 3 \times 9| = |-11| = 11^\circ$ ✓

(ب)



$\frac{9}{r} \times R^2 = \frac{7}{12} \times 9 = \frac{7 \cdot 9}{12}$ ✓

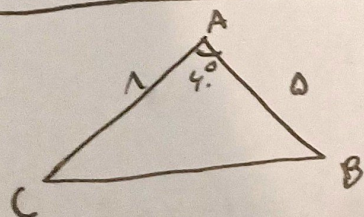
(الف - 3)

$\widehat{AB} = 3 \times \frac{7}{12} = \frac{7}{4}$

$\frac{7}{4} + 6$ ✓

(2)

(ب)



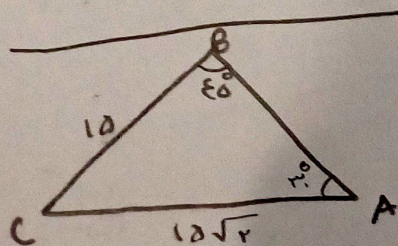
$S_{ABC} = 2 \times 1 \times \frac{1}{2} \times \sin 40^\circ = 2 \times 1 \times \frac{1}{2} \times \frac{\sqrt{3}}{2} = 1.5\sqrt{3}$ ✓

(2)

(الف - 4)

$CB = \sqrt{4 + 1 - 2 \times 2 \times 1 \times \cos 40^\circ} = \sqrt{19 - 16} = \sqrt{3} = \sqrt{3}$

$2 + 1 + \sqrt{3} = (2.5)$ ✓



$B + C = 10^\circ$
 $A = 70^\circ$

$\frac{10}{\sin 70^\circ} = \frac{10\sqrt{2}}{\sin B} \rightarrow \frac{10}{\frac{1}{2}} = \frac{10\sqrt{2}}{\sin B} \rightarrow \sin B = \frac{\sqrt{2}}{2}$
 $B = 45^\circ$

(2)

$C: 110 - (70 + 45) = 10^\circ \rightarrow \frac{10}{11} = \frac{R_{ad}}{n} \rightarrow R_{ad}: \frac{10 \cdot \pi}{11}$

$\hat{B} = \frac{\pi}{2}$ ✓

$\hat{C} = \frac{\sqrt{2}\pi}{12}$ ✓

$$\frac{\tan(\pi - a) + r \tan(\pi + a)}{\tan(r\pi - a) - \tan(r\pi + a)} = \frac{-\tan a + r \tan a}{-\tan a - \tan a} = \frac{r \tan a}{-r \tan a} = \textcircled{-1} \quad \textcircled{1}$$

$$\frac{r \tan 0^\circ + \tan 180^\circ}{r \tan 180^\circ - \tan r 180^\circ} = \frac{r \tan(\frac{\pi}{r} - a) + \tan(\frac{\pi}{r} + a)}{r \tan(\pi - a) - \tan(\frac{r\pi}{r} - a)} = \frac{r \cot a + (-\cot a)}{-r \tan - \cot a} \quad \textcircled{1.5}$$

$$\tan \frac{\pi}{r} = a$$

$$\tan 180^\circ = a$$

$$\frac{-1}{r a^r + 1} \xrightarrow{\text{بجای } a} \frac{\cot a}{-\frac{r}{\cot a} - \cot a} = \frac{\cot a}{\frac{r - \cot^2 a}{\cot a}} = \frac{\cot^2 a}{-r - \cot^2 a} =$$

$$\frac{-\cot^2 a}{r + \cot^2 a} =$$

$$\frac{\sin u + \cos u}{\sin u - \cos u} + \frac{\sin u - \cos u}{\sin u + \cos u} = \frac{\sin^2 u + r \sin u \cos u + \cos^2 u + \sin^2 u - r \sin u \cos u}{(\sin u + \cos u)(\sin u - \cos u)} \quad \textcircled{1}$$

$$\frac{r \sin^2 u + r \cos^2 u}{\sin^2 u - \cos^2 u} = r \rightarrow r \sin^2 u + r \cos^2 u = r \sin^2 u - r \cos^2 u$$

$$2 \cos^2 u = \sin^2 u$$

$$\tan^2 u = \frac{\sin^2 u}{\cos^2 u} \Rightarrow \frac{2 \cos^2 u}{\cos^2 u} = \textcircled{2} \quad \checkmark$$

$$\frac{\sin^2 u - r \cos^2 u + 1}{\sin^2 u + r \cos^2 u - 1} = \xi$$

$$\frac{1 - \cos^2 u - r \cos^2 u + 1}{1 - \cos^2 u + r \cos^2 u - 1} = \xi$$

$$r - r \cos^2 u = \xi \cos^2 u$$

$$r = \xi \cos^2 u \rightarrow \cos^2 u = \frac{r}{\xi}$$

$$\frac{1}{\cos^2 u} = 1 + \tan^2 u \rightarrow \frac{\xi}{r} = 1 + \tan^2 u$$

$$\tan^2 u = \frac{\xi}{r} \quad \checkmark$$

$$\cos\left(\frac{\theta}{r}\right) \rightarrow \sqrt{\frac{1 + \cos \theta}{r}}$$

$$\theta = 90^\circ \rightarrow \sqrt{\frac{1 + \frac{\sqrt{r}}{r}}{r}} \rightarrow \sqrt{\frac{r + \sqrt{r}}{r^2}} \rightarrow \frac{\sqrt{r + \sqrt{r}}}{r} \quad \checkmark$$

$$\textcircled{1} \quad \cos - 1$$

$$\sin\left(\frac{\theta}{r}\right) \rightarrow \sqrt{\frac{1 - \cos \theta}{r}}$$

$$\theta = 180^\circ \rightarrow \sqrt{\frac{1 - (-\frac{\sqrt{r}}{r})}{r}} \rightarrow \sqrt{\frac{1 + \frac{\sqrt{r}}{r}}{r}} \rightarrow \sqrt{\frac{r + \sqrt{r}}{r^2}} \rightarrow \frac{\sqrt{r + \sqrt{r}}}{r} \quad \checkmark$$