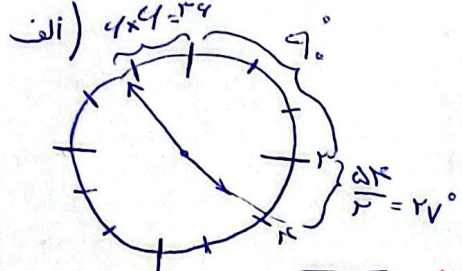
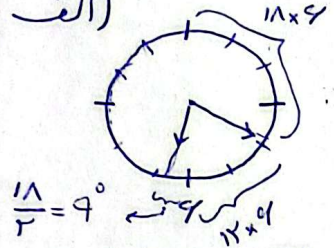


نام و نام خانوادگی بنیاد پاسخنامه تشریحی تکلیف شماره ۱۹ کلاس A

الف)  $\alpha = 36 + 18 = 54^\circ$ ✓

ب) $\alpha = |\omega, \omega M - 3. H|$
 $= |\omega, \omega \times 54 - 3. \times 3| = 2.7$
 $36. - 2.7 = 153^\circ$ ✓

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الف)  $\alpha = 18 + 9 = 27^\circ$ ✓

ب) $\alpha = |\omega, \omega M - 3. H|$
 $= |\omega, \omega \times 18 - 3. \times 9| = 1.81$
 $= 11^\circ$ ✓

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الف) $S = \frac{\alpha}{r} R^2 = \frac{\pi}{9} \times \frac{1}{r} \times r^2 = \frac{r\pi}{9} \text{ cm}^2$ ✓

ب) $P = rR + |AB| = r \times r + \alpha R = 9 + \frac{\pi}{9} \times r = (9 + \frac{\pi}{9}) \text{ cm}$ ✓

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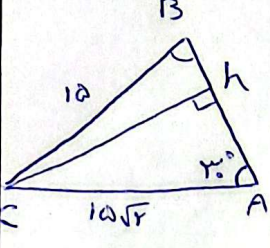
* a, b, c ترتیب ضلع‌ها در دایره A, B, C اند.

الف) $S = \frac{1}{2} bc \sin A = \frac{1}{2} \times 5 \times 8 \times \frac{\sqrt{3}}{2} = 10\sqrt{3}$ ✓

ب) $a^2 = c^2 + b^2 - 2cb \cos A = 25 + 64 - 2 \times 5 \times 8 \times \frac{1}{2} = 49 \Rightarrow a = 7$ ✓

$P = a + b + c = 8 + 5 + 7 = 20$ ✓

۴



$\hat{B} + \hat{C} + \hat{A} = 180^\circ \Rightarrow \hat{A} = 30^\circ$
 $\hat{B} + \hat{C} = 150^\circ$

$\frac{CH}{CA} = \sin 30^\circ = \frac{1}{2} \Rightarrow CH = \frac{15\sqrt{3}}{2}$
 $\frac{CH}{CB} = \frac{15\sqrt{3}}{2} \times \frac{1}{10} = \frac{\sqrt{3}}{4} = \sin \hat{B} \Rightarrow \hat{B} = 60^\circ$
 $\Rightarrow \hat{C} = 90^\circ$

$\hat{B} = 60^\circ \Rightarrow \frac{60}{180} = \frac{R}{\pi} \Rightarrow R = \frac{\pi}{3}$ ✓

$\hat{C} = 90^\circ \Rightarrow \frac{90}{180} = \frac{R}{\pi} \Rightarrow R = \frac{\pi}{2}$ ✓

۵

$$\frac{-\tan \alpha + r \tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{r \tan \alpha}{-r \tan \alpha} = \boxed{-1} \quad \checkmark$$

(r)

6

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

$$= \frac{\cot \frac{\pi}{r}}{-ra - \cot \frac{\pi}{r}} = \frac{\frac{1}{a}}{-ra - \frac{1}{a}} = \boxed{-\frac{1}{ra+1}} \quad \checkmark$$

(r)

7

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

$$\Rightarrow r - r \sin^r \alpha \cos^r \alpha = \cos^r \alpha \Rightarrow r - r \sin^r \alpha - \sin^r \alpha = \cos^r \alpha \Rightarrow r \cos^r \alpha - \sin^r \alpha = -\cos^r \alpha$$

$$\Rightarrow -\sin^r \alpha = -\cos^r \alpha \Rightarrow \frac{\sin^r \alpha}{\cos^r \alpha} = 1 \Rightarrow \tan^r \alpha = 1 \quad \checkmark$$

(r)

8

$$\sin^r \alpha - r \cos^r \alpha + 1 = r \sin^r \alpha + 1 \cos^r \alpha - r^2 \Rightarrow \Delta - 1 \cos^r \alpha = r \sin^r \alpha$$

$$\Rightarrow \Delta - \Delta \cos^r \alpha - \Delta \cos^r \alpha = r \sin^r \alpha \Rightarrow \Delta \sin^r \alpha - \Delta \cos^r \alpha = r \sin^r \alpha$$

$$-\Delta \cos^r \alpha = -r \sin^r \alpha \Rightarrow \frac{\sin^r \alpha}{\cos^r \alpha} = \frac{\Delta}{r} \Rightarrow \tan^r \alpha = \frac{\Delta}{r} = r, \Delta \quad \checkmark$$

(r)

9

$$\text{جاء) } \cos^r(r, \Delta) = \frac{1 + \cos(r\Delta)}{r} = \frac{1 + \frac{\sqrt{r}}{r}}{r} = \frac{r + \sqrt{r}}{r} \Rightarrow \cos(r, \Delta) = \begin{cases} +\frac{r + \sqrt{r}}{r} \checkmark \\ -\frac{r + \sqrt{r}}{r} \times \end{cases}$$

(r)

$$\text{ب) } \sin^r(r, \Delta) = \frac{1 - \cos(r\Delta)}{r} = \frac{1 - \frac{\sqrt{r}}{r}}{r} = \frac{r - \sqrt{r}}{r} \Rightarrow \sin(r, \Delta) = \begin{cases} +\frac{r - \sqrt{r}}{r} \checkmark \\ -\frac{r - \sqrt{r}}{r} \times \end{cases}$$

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