

نام و نام خانوادگی طاهره حق جونی پاسخنامه تشریحی تکلیف شماره ۱۲ کلاس دوازدهم ۱۸

$$BT = \tan \hat{O}_1 = \cot \alpha \rightarrow \text{Diagram} \rightarrow AB = \sqrt{\cot^2 \alpha + 1} - 1 = \sqrt{\frac{1}{\sin^2 \alpha} - 1}$$

$$= \frac{1}{\sin \alpha} - 1 \quad \checkmark$$

(۲)

$$\frac{AC}{\sin \alpha} = \frac{r}{\sin 40^\circ} = \frac{r}{\frac{1}{2}} = 2 \rightarrow 2 \sin \alpha = AC$$

$$\frac{AB}{\sin 140^\circ - \alpha} = \frac{r}{\sin 40^\circ} = \frac{r}{\frac{1}{2}} = 2 \rightarrow 2 \sin \alpha = AB$$

$$\Rightarrow \frac{AB}{AC} = \frac{2 \sin \alpha}{2 \sin \alpha} = 1 \quad \checkmark$$

(۲)

Diagram: A circle with center O, points A, B, C on the circumference, and D on the diameter AC. $\angle AOC = 90^\circ$.

$$x_A = \cos \hat{DOA} = \frac{1}{2} \rightarrow \hat{DOA} = 60^\circ, \quad y_B = \sin \hat{DOB} = \frac{1}{2} \rightarrow \hat{DOB} = 30^\circ$$

$$\hat{BOC} = 90^\circ + 90^\circ = 180^\circ \rightarrow S_{BOC} = \frac{1}{2} \times 1 \times 1 \times \sin 180^\circ = 0$$

$$\hat{AOB} = 90^\circ + 90^\circ = 180^\circ \rightarrow S_{AOB} = \frac{1}{2} \times 1 \times 1 \times \sin 180^\circ = 0$$

$$\hat{AOC} = 90^\circ + 90^\circ = 180^\circ \rightarrow S_{AOC} = \frac{1}{2} \times 1 \times 1 \times \sin 180^\circ = 0$$

$$\rightarrow S_{ABC} = \frac{1}{2} + \frac{1}{2} + \frac{\sqrt{3}}{4} = \frac{1+\sqrt{3}}{2} \quad \checkmark$$

Other calculations:

$$AB = 1^2 + 1^2 - 2 \times 1 \times 1 \times \cos 90^\circ = 2 \quad AB = \sqrt{2}$$

$$AC = 1^2 + 1^2 - 2 \times 1 \times 1 \times \cos 120^\circ = 3 \quad AC = \sqrt{3}$$

$$BC = 1^2 + 1^2 - 2 \times 1 \times 1 \times \cos 150^\circ = 1 + \sqrt{3} \quad BC = \sqrt{1+\sqrt{3}}$$

$$\rightarrow \text{Perimeter} = 2 + \sqrt{2} + \sqrt{3} + \sqrt{1+\sqrt{3}}$$

(۱)

$$\frac{BC}{\sin A} = \frac{AC}{\sin B} \rightarrow \frac{\log \frac{r}{r}}{\frac{1}{r}} = \frac{\log \frac{r}{r}}{\sin B} \rightarrow \sin B = \frac{\frac{1}{r} \log \frac{r}{r}}{\log \frac{r}{r}} = \frac{1}{r} \left(\frac{\log r}{\log r} \right)^r$$

$$\rightarrow \sin B = \frac{1}{r} (\log \frac{r}{r})^r$$

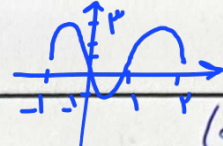
?

(۲)

$$\frac{r \cos^n n - \cos^n n - \sin^n n \times (r \sin^n n - 1)}{\cos^n n (r \cos^n n - 1)} = \cos^n n (\sin^n n + \cos^n n) = \cos^n n = 1$$

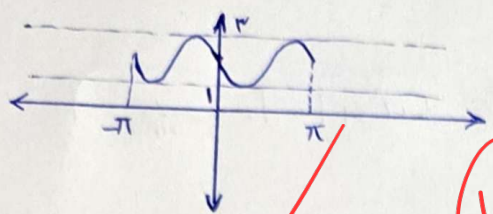
$$\rightarrow \sin^n n = 0 \quad \checkmark$$

(۲)



$-r \sin x \cos x + r = -\sin 2x + r$ (ج)

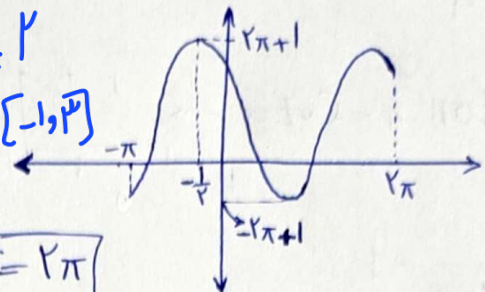
$r \pi \cos(x + \frac{1}{r}) + 1$ (ب)



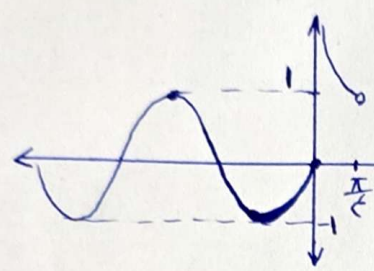
$T = \pi$

$T = r$

$R_f = [-1, \pi]$



$T = r\pi$



$R_f = [-1, +\infty)$

$f(x) = a + \frac{b}{r} \sin(rx) \cos(rx) = a + \frac{b}{r} \sin(2cx)$

$T = \frac{\pi}{r} - \frac{\pi}{10} = \frac{r\pi}{a} = \frac{r\pi}{|rc|} \rightarrow \frac{a}{r} = |c| \xrightarrow{c>0} c = \frac{a}{r}$

$\frac{b}{r} = r \rightarrow b = r, a = r \rightarrow \frac{bc}{a} = \frac{1 \times \frac{a}{r}}{r} = \frac{1}{r} \checkmark$

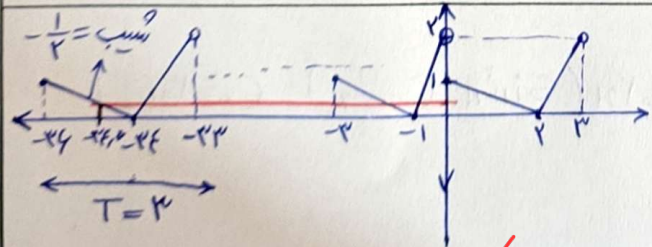
$ab < 0$ $\max - \min = 4 \rightarrow |a| = \frac{4}{r} = r, c = -1, T = \pi = \frac{r\pi}{|b|} \rightarrow |b| = r$

$\alpha = -r, b = r \checkmark$

$\alpha = r, b = -r \times \rightarrow f(x) = -r \cos 2x - 1 \rightarrow f(x) = 0$

$\rightarrow -r \cos 2x = 1 \rightarrow \cos 2x = -\frac{1}{r} \xrightarrow{\frac{1}{\cos 2x} - 1 = \tan^2 x} 9 - 1 = 8 \checkmark$

$\rightarrow \tan^2 x = 1 \rightarrow |\tan x| = \sqrt{2} \checkmark$



$\frac{1}{r} = \frac{1}{r} \checkmark$

$\left[-\frac{r}{r} \right] = -1r$

$r_x(-1r) = -r^2$