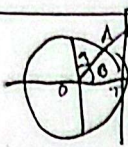


نام و نام خانوادگی نیلای پاسخنامه تشریحی تکلیف شماره ۱۴ کلاس دوازدهم ۱۳۹۸



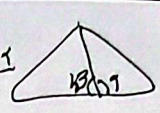
$$OB = \sqrt{1^2 + 9 \cos^2 \alpha}$$

$$AB = OB - OA = \sqrt{1 + 9 \cos^2 \alpha} - 1$$

$$1 + 9 \cos^2 \alpha = \frac{1}{\sin^2 \alpha} \Rightarrow$$

$$AB = \frac{1}{\sin \alpha} - 1$$

$\sin \alpha = \cos 30^\circ$
 $\cos \alpha = \sin 30^\circ$
 $\tan \alpha = \cot 30^\circ$

$\frac{BC}{\sin 60^\circ} = \frac{AC}{\sin \alpha} \Rightarrow AC = \frac{4 \sin 30^\circ}{\sin \alpha}$


$$\sin \alpha = \sin 30^\circ$$

$$\sin \alpha = \sin 30^\circ$$

$$\frac{BD}{\sin 60^\circ} = \frac{AB}{\sin \alpha} \Rightarrow AD = \frac{4 \sin 30^\circ}{\sqrt{3}} \cdot \frac{AB}{AC} = \frac{4 \sin 30^\circ}{\sqrt{3}} \cdot \frac{1}{2 \sin \alpha} = \frac{2}{\sqrt{3}}$$

$$\frac{AD}{AB} = \frac{2}{\sqrt{3}}$$

$A \mid \frac{1}{\sqrt{3}}$
 $B \mid \frac{1}{\sqrt{3}}$
 $C \mid 0$

$AB = \sqrt{\left(\frac{1}{\sqrt{3}} - \frac{1}{\sqrt{3}}\right)^2 + (1 - 1)^2} = 0$
 $AC = \sqrt{\left(0 - \frac{1}{\sqrt{3}}\right)^2 + \left(\frac{1}{\sqrt{3}} + 1\right)^2} = \sqrt{2 + \frac{4}{3}} = \sqrt{\frac{10}{3}}$
 $BC = \sqrt{\left(\frac{1}{\sqrt{3}} - 0\right)^2 + \left(1 + 1\right)^2} = \sqrt{4 + \frac{1}{3}} = \sqrt{\frac{13}{3}}$

$S_{\triangle ABC} = \frac{1}{2} \times AB \times AC \times \sin A = \frac{1}{2} \times \frac{1}{\sqrt{3}} \times \sqrt{\frac{10}{3}} \times \log \frac{1}{2} = \frac{1}{4} \times \frac{1}{\sqrt{3}} \times \frac{1}{\log 2} \times \log 2 = \frac{1}{4}$

$S = \sqrt{\frac{10}{3}}$

$S_{\triangle ABC} = \frac{1}{2} \times AB \times AC \times \sin A = \frac{1}{2} \times \frac{1}{\sqrt{3}} \times \sqrt{\frac{10}{3}} \times \log \frac{1}{2} = \frac{1}{4}$

$2 \cos^2 \alpha - \cos^2 \alpha - 2 \sin^2 \alpha - \sin^2 \alpha$

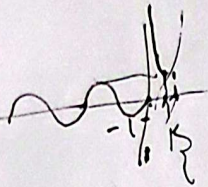
$$2(\cos^2 \alpha - \sin^2 \alpha) - (\cos^2 \alpha + \sin^2 \alpha) = 1 \Rightarrow 2 \cos^2 \alpha = 2$$

$$\Rightarrow \sin^2 \alpha = \sqrt{1 - 1} = 0$$

$$f(-\pi/2) = f(\pi/2 - \pi/2) = f(0) =$$

$$f(x) = \frac{1}{2}x + 1$$

$$a(-\frac{1}{2}) + 1 = \frac{1}{2}$$



$$\cos \frac{\pi}{2} = 1$$

$$\Rightarrow R_5 = [1, +\infty)$$

$$f(x) = a + \frac{b}{x} \sin(\pi x) = \frac{bc}{a} = \frac{1 \cdot \frac{1}{2}}{2} = \frac{1}{4}$$

$$\frac{\pi}{2} = \frac{\pi}{2} \Rightarrow a = \frac{1}{2}$$

$$a + \frac{b}{x} = \frac{1}{2}$$

$$a - \frac{b}{x} = \frac{1}{2}$$

$$\rightarrow a = \frac{1}{2}$$

$$\frac{\pi}{2} = \frac{\pi}{2} \Rightarrow c = \frac{1}{2}$$

$$|a| + b = \frac{1}{2}$$

$$-|a| + b = 0$$

$$b = \frac{1}{2}$$

$$b = \frac{1}{2}$$

$$|a| = \frac{1}{2} \Rightarrow a = \pm \frac{1}{2}$$

$$\frac{\pi}{2} = \pi \Rightarrow b = \frac{1}{2}$$

$$c = \frac{1}{2}$$

$$|a| + c = \frac{1}{2}$$

$$-|a| + c = -\frac{1}{2} \Rightarrow c = -\frac{1}{2}$$

$$|a| = \frac{1}{2} \Rightarrow a = \pm \frac{1}{2}$$

$$f(x) = -\frac{1}{2} \cos(\pi x) - 1$$

$$-\frac{1}{2} \cos(\pi x) - 1 \Rightarrow \cos(\pi x) = -\frac{1}{2}$$

$$\sin(\pi x) = \sqrt{1 - \frac{1}{4}} = \frac{\sqrt{3}}{2}$$

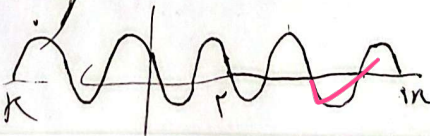
$$|a| = \frac{1}{2} \Rightarrow a = \pm \frac{1}{2}$$

$$f(x) = -\sin(\pi x) + 1$$

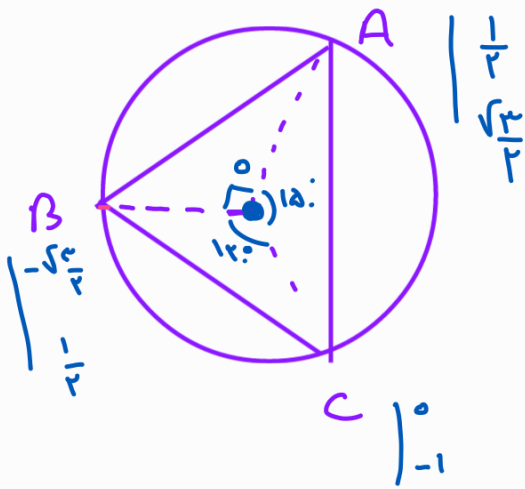
$$\frac{\pi}{2} = \pi \Rightarrow c = \frac{1}{2}$$



$$f(x) = 2 \cos(\pi x + \frac{\pi}{2}) + 1 = -2 \sin(\pi x) + 1$$



$$f(x) = -2 \sin(\pi x) + 1$$



$$S_{AOC} = 1 \times 1 \times \frac{1}{r} \times \frac{1}{r} = \frac{1}{r^2}$$

$$S_{OAB} = 1 \times 1 \times \frac{1}{r} \times \frac{1}{r} = \frac{1}{r^2}$$

$$S_{OBC} = 1 \times 1 \times \frac{1}{r} \times \frac{\sqrt{r}}{r} = \frac{\sqrt{r}}{r^2}$$

$$S_{ABC} = \frac{1}{r^2} + \frac{1}{r^2} + \frac{\sqrt{r}}{r^2} = \frac{r + \sqrt{r}}{r^2}$$

$$BC^2 = r^2 + r^2 - 1 \times 1 \times r \times \frac{1}{r} = 1 + 1 + 1 = 3 \rightarrow BC = \sqrt{3}$$

$$AC^2 = r^2 + r^2 - 1 \times 1 \times r \times \frac{\sqrt{r}}{r} = 1 + 1 + \sqrt{r} \rightarrow AC = \sqrt{r + \sqrt{r}}$$

$$AB^2 = r^2 + r^2 \rightarrow AB = \sqrt{r}$$

$$P_{ABC} = \sqrt{r} + \sqrt{r} + \sqrt{r + \sqrt{r}}$$