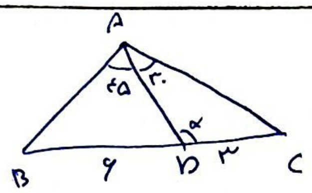
نام و نام خانوادگی ....امیر محمد ابوطالبی.... پاسخنامه تشریحی تکلیف شماره .... کلاس ....

1

2



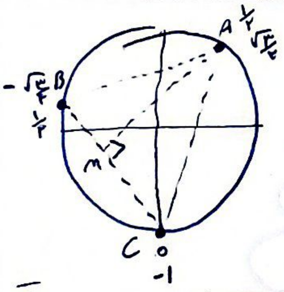
طبق قانون sin ها:

$$\frac{DC}{\sin 30^\circ}=\frac{AC}{\sin\alpha}\to\frac{3}{\frac{1}{2}}=\frac{AC}{\sin\alpha}$$

$$\frac{BD}{\sin 45^\circ}=\frac{AB}{\sin(\pi-\alpha)}\to\frac{6}{\frac{\sqrt{2}}{2}}=\frac{AB}{\sin\alpha}$$

$$\frac{\frac{AB}{\sin\alpha}}{\frac{AC}{\sin\alpha}}=\frac{AB}{AC}=\frac{6\sqrt{2}}{6}=\sqrt{2}$$

3



معادله خط BC: $\frac{\frac{1}{2}+1}{-\frac{\sqrt{3}}{2}-0}=\frac{\frac{3}{2}}{-\frac{\sqrt{3}}{2}}=-\sqrt{3}$

$$y=-\sqrt{3}x-1$$

معادله خط AM ، شیب ۲ خط عمود قرینه و معکوس یکدیگرند

1) $S=\frac{1}{2}|x_A(y_B-y_C)+x_B(y_C-y_A)+x_C(y_A-y_B)|$

$$S=\frac{1}{2}\left|\frac{1}{2}\left(\frac{1}{2}-(-1)\right)+-\frac{\sqrt{3}}{2}\left(-1-\frac{\sqrt{3}}{2}\right)+0\right|=\frac{1}{2}\left|\frac{3}{4}+\frac{\sqrt{3}}{2}+\frac{3}{4}\right|=\boxed{\frac{3+\sqrt{3}}{4}}$$

2) فاصله ۲ نقطه از هم: $\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$

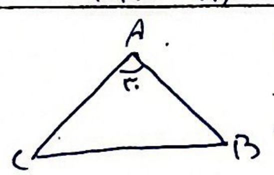
$$AC=\sqrt{\left(\frac{1}{2}\right)^2+\left(\frac{\sqrt{3}}{2}+1\right)^2}=\sqrt{\frac{1}{4}+\frac{7+4\sqrt{3}}{4}}=\sqrt{\frac{8+4\sqrt{3}}{4}}=\sqrt{2+\sqrt{3}}$$

$$AB=\sqrt{\left(\frac{1}{2}+\frac{\sqrt{3}}{2}\right)^2+\left(\frac{\sqrt{3}}{2}-\frac{1}{2}\right)^2}=\sqrt{2}$$

$$BC=\sqrt{\left(-\frac{\sqrt{3}}{2}\right)^2+\left(\frac{3}{2}\right)^2}=\sqrt{\frac{3}{4}+\frac{9}{4}}=\sqrt{3}$$

$$P=\sqrt{2}+\sqrt{3}+\sqrt{2+\sqrt{3}}$$

4



$$S=\frac{1}{2}AC\times AB\times\sin 30^\circ\to\frac{1}{2}\times\log_3 16\times\log_2 27\times\frac{1}{2}$$

$$\to\frac{1}{4}\times\frac{\log 16}{\log 3}\times\frac{\log 27}{\log 2}\to\frac{1}{4}\times\frac{4\cancel{\log 2}}{\cancel{\log 3}}\times\frac{3\cancel{\log 3}}{\cancel{\log 2}}$$

$$\boxed{S=3}$$

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5 (2

$$2x^4-x^2-\sin^2\alpha\,(2\sin^2\alpha-1)=1$$

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

$\sin^2-\cos^2$

$\sin^2=(1-\cos^2)$

$$2\cos^4\alpha-\cos^2\alpha-(1-\cos^2\alpha)\left(2(1-\cos^2\alpha)-1\right)=1$$

$$2\cos^4\alpha-\cos^2\alpha-(1-\cos^2\alpha)(1-2\cos^2\alpha)=1\to$$

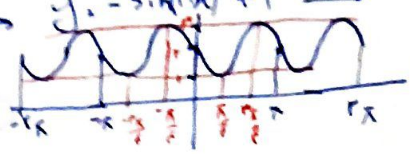
$$\to\cancel{2\cos^4\alpha}-\cos^2\alpha-1+3\cos^2\alpha-\cancel{2\cos^4\alpha}=1\to 2\cos^2\alpha-1=1$$

$2\cos^2\alpha$

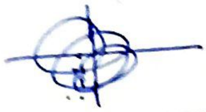
$$\boxed{\cos\alpha=\pm1}\to\sin 2\alpha=2\sin\alpha\cos\alpha\to\boxed{\sin 2\alpha=0}$$

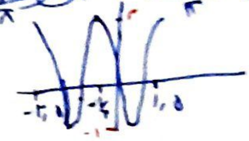
$$\boxed{\sin\alpha=0}$$

الف) $y = -2\sin x\cos x + 1 \longrightarrow y = -\sin(2x) + 1 \longrightarrow T = \frac{2\pi}{2} = \pi$ ۶

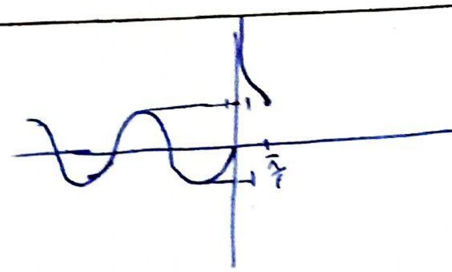


ب) $2\cos\left(x + \frac{1}{2}\right)\pi + 1 \longrightarrow 2\cos\left(\pi x + \frac{\pi}{2}\right) + 1$ $\quad T = \frac{2\pi}{\pi} = 2$





$f(x) = \begin{cases} \cot x & 0 < x < \frac{\pi}{4} \\ \sin x & x \le 0 \end{cases}$ ۷



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

$f(x) = a + \underbrace{\underbrace{b\sin(cx)\cos(cx)}_{\frac{b}{2}\sin(2cx)}\cos(2cx)}_{\frac{b}{4}\sin(4cx)} = a + \frac{b}{4}\sin(4cx)$ ۸

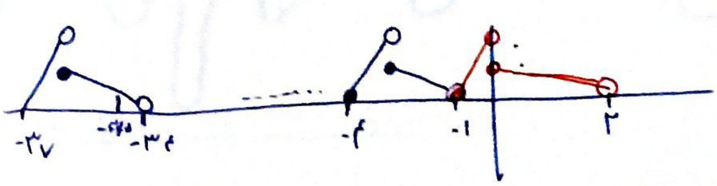
$T = \frac{\pi}{2} - \frac{\pi}{10} = \frac{5\pi}{10} - \frac{\pi}{10} = \frac{4\pi}{10} \longrightarrow \frac{4\pi}{10} = \frac{2\pi}{4c} \sim \frac{4\pi}{10} = \frac{\pi}{2c} \longrightarrow \boxed{c = \frac{10}{8}}$

$a + \frac{b}{4} = 4$, $a - \frac{b}{4} = 0 \sim \boxed{a = 2}, \boxed{b = 8} \sim \frac{8 \times \frac{10}{8}}{2} = 5$

$\frac{2\pi}{b} = \pi \sim \boxed{b = 2}$ ۹

$a + c = 2$, $-a + c = -4 \sim \boxed{c = -1}, \boxed{a = 3} \longrightarrow \boxed{a = -3}$ نمودار قرینه است

$-3\cos 2\alpha - 1 = 0 \sim \cos 2\alpha = -\frac{1}{3} \sim \sin 2\alpha = \frac{\sqrt{8}}{3} \sim \frac{\sin 2\alpha}{\cos 2\alpha} = \frac{\frac{\sqrt{8}}{3}}{-\frac{1}{3}}, |-2\sqrt{2}| = 2\sqrt{2}$



$\begin{matrix} 2 & 0 \\ 0 & 1 \end{matrix} \rightarrow -\frac{1}{2}$ ۱۰

صفر تا ۲ ← دو شیب خط

$y = -\frac{1}{2}x + 1$

$y = -\frac{1}{2} \times (-34{,}5) + 1 = \boxed{18{,}25}$