نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ..... کلاس .....

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$OA = 1$

$\cos 1 \times OB = OT$

$\sin \alpha \times OB = OT'$

$\sin \alpha = \cos 1 \quad OB = \frac{1}{\sin \alpha}$

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

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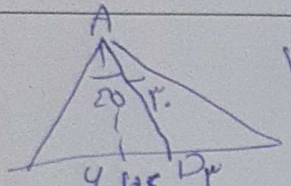

$\frac{1}{2} AH \times BD = S_{ABD}$

$\frac{1}{2} AH \times DC = S_{ADC}$

$\rightarrow S_{ABD} = 2 S_{ADC} \rightarrow AB \times AD \times \sin 45 = 2 AD \times AC \times \sin 30$

$\frac{AB}{AC} = \frac{2 \sin 30}{\sin 45} = \frac{2 \times \frac{1}{2}}{\frac{\sqrt{2}}{2}} = \frac{1}{\frac{\sqrt{2}}{2}} = \frac{2}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2}$

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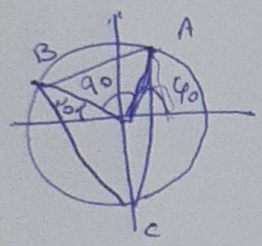

$S_{ABC} = S_{OAB} + S_{OBC} + S_{OAC}$

$\frac{1}{2} \times 1 \times 1 \times \sin 90 + \frac{1}{2} \times 1 \times 1 \times \sin 120 + \frac{1}{2} \times 1 \times 1 \times \sin 150$

$= \frac{2}{4} + \frac{\sqrt{3}}{4} + \frac{1}{4} = \frac{2 + \sqrt{3}}{4}$

الف

طول کمان $= 2 \times 2 \sin\left(\frac{\alpha}{2}\right)$

ب

$2 \times 1 \times \sin 30 + 2 \times 1 \times \sin 45 + 2 \times 1 \times \sin 90$

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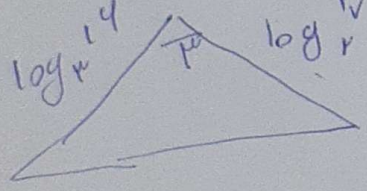

$S = \frac{1}{2} bc \sin A$

$\rightarrow S = \frac{1}{2} \log_2^{27} \times \log_4^{14} \times \frac{1}{2}$

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$2\cos^4 \alpha - \cos^2 \alpha - 2\sin^4 \alpha + \sin^2 \alpha$

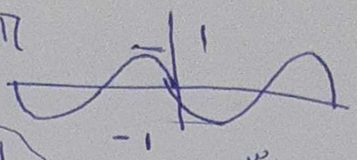
$= 0 =$

$2(\cos^4 \alpha - \sin^2 \alpha)(\sin^2 \alpha + \cos^2 \alpha) - (\cos^2 \alpha - \sin^2 \alpha)$

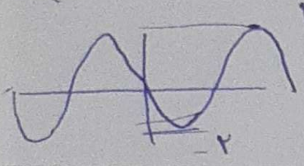
$2(\cos^2 \alpha - \sin^2 \alpha) - (\cos^2 \alpha - \sin^2 \alpha) = \cos 2\alpha = 1$

$\cos^2 2\alpha = 1 \rightarrow \sin 2\alpha = 0$

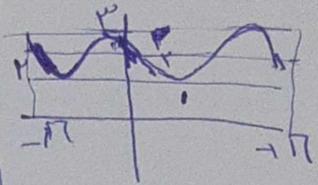
الف) $y = -\sin 2x + 2$ دوره تناوب $= \frac{2\pi}{2} = \pi$



ب) $2\cos(\pi x + \pi/2) + 1 = -2\sin(\pi x) + 1$



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



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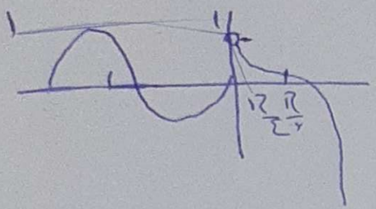
$\cot \frac{\pi}{4} = 1$



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

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$f(x) = a + b \sin(cx)\cos(cx).\cos(2cx)$

$= a + b/2 \sin(2cx)\cos(2cx)$

$= a + \frac{b}{4} \sin(4cx) = 3$

$\frac{2\pi}{4c} = \frac{2\pi}{5} \Rightarrow c = \frac{5}{4}$ $\frac{b}{4} = 2 \Rightarrow b = 8$ $\frac{bc}{a} = \frac{8 \times \frac{5}{4}}{2} = 5$

$a = 2$

$\frac{5\pi}{10} - \frac{\pi}{10} = \frac{4\pi}{10} = \frac{2\pi}{5}$

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$\frac{2\pi}{b} = \pi \Rightarrow b = 2$ $a = -3$ $c = -1$

$\Rightarrow f(x) = -3\cos 2x - 1$

$f(x) = 0 \Rightarrow 3\cos 2x = -1 \Rightarrow \cos 2x = -\frac{1}{3}$

$1 + \tan^2 2x = \frac{1}{\cos^2 2x} = \frac{1}{\frac{1}{9}} = 9 \Rightarrow \tan^2 2x = 8 \Rightarrow |\tan 2x| = 2\sqrt{2}$

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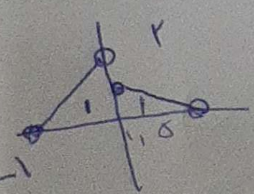

$f(-\frac{3}{4}, 1/5) = \frac{25}{2}$

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