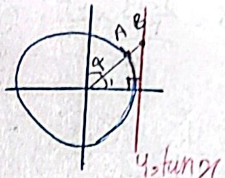
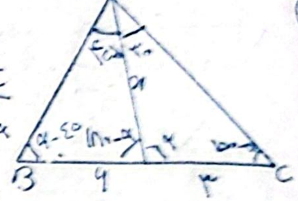
1) [illegible]



9 .

عالی

2)

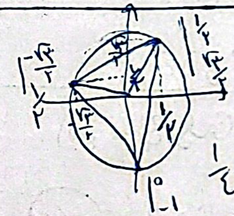


$\frac{12}{\sqrt{2}} = \frac{6}{\frac{\sqrt{2}}{2}} = \frac{x}{\sin(180-\alpha)} = \frac{AB}{\sin(180-\alpha)}$ [illegible] $= \frac{3}{\frac{1}{2}} = \frac{x}{\sin\alpha} = \frac{AC}{\sin\alpha}$

$\frac{12}{\sqrt{2}} \frac{\sin(180-\alpha)}{\sin\alpha} = AB \qquad 6\sin\alpha = AC$

$\frac{AB}{AC} = \frac{6\sin\alpha}{\frac{12}{\sqrt{2}}\sin\alpha} = \frac{\sqrt{2}}{2}$

3)



$\begin{cases} \frac{1}{2} & \frac{\sqrt{3}}{2} \\ \frac{\sqrt{3}}{2} & \frac{1}{2} \\ 0 & 1 \\ \frac{1}{2} & \frac{\sqrt{3}}{2} \end{cases}$ $\quad \frac{3}{4} + 0 + \frac{1}{4} \qquad \frac{3+2}{4} = \frac{5}{4}$

$\frac{1}{4} + \frac{\sqrt{3}}{2} + 0 \qquad \frac{1+2\sqrt{3}}{4}$

$S = \frac{\left|\frac{5}{4} - \frac{1+2\sqrt{3}}{4}\right|}{2}$

$S = \frac{4-2\sqrt{3}}{8}$

الف) $S = \frac{2-\sqrt{3}}{4}$

4) $\log_3^{14} \times \log_2^{27} \times \frac{1}{2} \times \frac{1}{2} \rightarrow 4\log_3^2 \times 3\log_2^3 \times \frac{1}{4} = 3$

5) $2x^4 - x^2 = (\sin^2\alpha)(2\sin^2\alpha - \cos^2\alpha \sin^2\alpha)$ $\quad x = \cos\alpha$

$2\sin^2\alpha = 1$

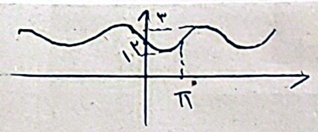
$-2\sin^4\alpha + \sin^2\alpha$

$2\cos^4\alpha - \cos^2\alpha - 2\sin^4\alpha + \sin^2\alpha = 1$ $\quad x = \cos\alpha$

$2\cos^4\alpha - 2\sin^4\alpha - \cos^2\alpha + \sin^2\alpha = 1$ $\quad \sin 2\alpha = 0$

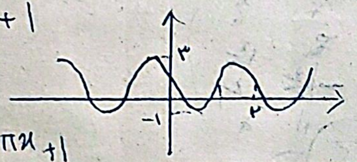
$2\cos^2\alpha - 2\sin^2\alpha - \cos^2\alpha + \sin^2\alpha = 1 \rightarrow \cos^2\alpha - \sin^2\alpha = 1$ $\quad \cos 2\alpha = 1$

6) الف) $-\sin 2x + 2$



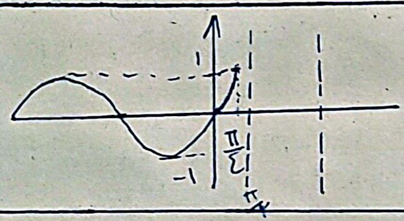
$T = \frac{2\pi}{2} = \pi$

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



$T = \frac{2\pi}{\pi} = 2$ $\quad = -2\sin\pi x + 1$

7)



$R_f = [-1, 1]$

8) $a + \frac{b}{4}\sin 4cx \qquad \frac{2\pi}{4c} = \frac{4\pi}{10} \rightarrow \frac{1}{4c} = \frac{2}{5} \rightarrow \frac{5}{8} = c$

$a + \left|\frac{b}{4}\right| = 4 \qquad a = 2 \qquad \left|\frac{b}{4}\right| = 2 \rightarrow b = 8 \rightarrow \frac{2 \cdot 8 \times \frac{5}{8}}{2} = 5$

$a - \left|\frac{b}{4}\right| = 0$

9) $|a| > 2$

$|a| + c = 2$

$-|a| + c = -4 \rightarrow 2c = -2 \qquad |a| = 3$

$c = -1$

$\frac{\sin 2\alpha}{\cos 2\alpha} \quad \left|\frac{\frac{\sqrt{8}}{3}}{-\frac{1}{3}}\right| \quad 2\sqrt{2}$

$-3\cos 2x - 1 \rightarrow -3\cos 2\alpha - 1 = 0 \rightarrow \cos 2\alpha = -\frac{1}{3} \qquad \sin 2\alpha = 1 - \frac{1}{9} = \sqrt{\frac{8}{9}}$

10) $-34{,}5 \rightarrow (-1) + (3x - 11) + (0{,}5)$ $\quad 0 \rightarrow$ [illegible]

$y = -\frac{1}{2}x + 1 \rightarrow -\frac{1}{2} \times \frac{3}{2} + 1 = \frac{1}{4}$

عرض از مبدا