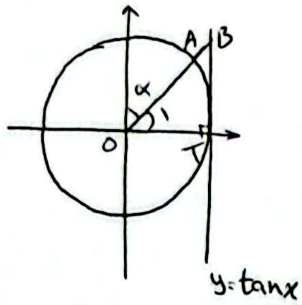
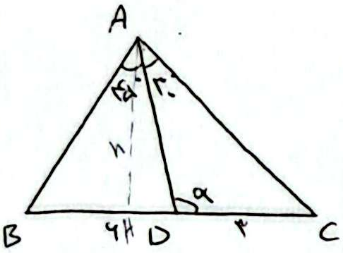
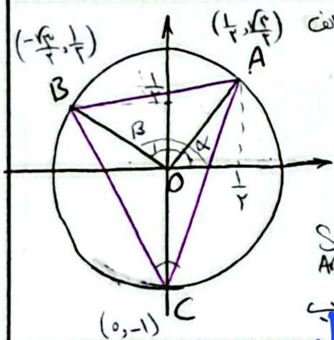
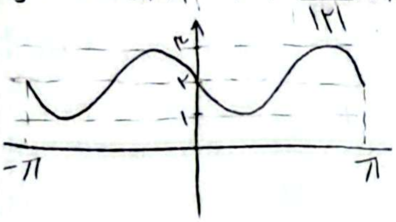
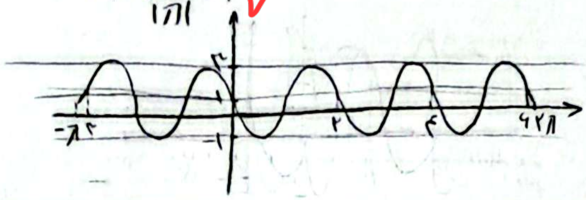
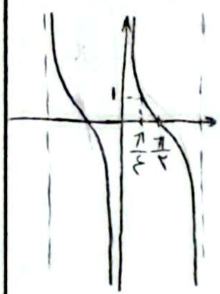
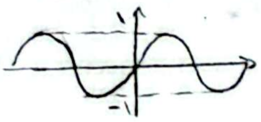
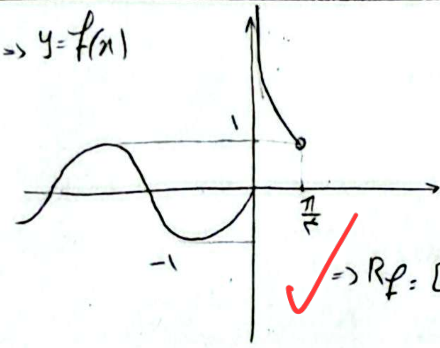
نام و نام خانوادگی ......فاطمه کریمی.......... ۱۸٫۵ پاسخنامه تشریحی تکلیف شماره ..۱۲... کلاس ..دوازدهم ریاضی A......

۱	 $\hat{\alpha}+\hat{O}_1=\frac{\pi}{2} \Rightarrow \sin\alpha=\cos\hat{O}_1$ $\cos\hat{O}_1=\frac{OT}{OB}=\frac{OT}{OA+AB} \xrightarrow{\text{جایگذاری}} \cos\hat{O}_1=\frac{1}{1+AB}$ $\sin\alpha=\frac{1}{1+AB} \Rightarrow 1+AB=\frac{1}{\sin\alpha}$ $AB=\frac{1-\sin\alpha}{\sin\alpha}$ ۲	
۲	 $\Rightarrow \frac{S_{AB\hat{D}}}{S_{AD\hat{C}}}=\frac{\cancel{h}\times 6\times\cancel{\frac{1}{2}}}{\cancel{h}\times 4\times\cancel{\frac{1}{2}}}=\frac{AB\times\cancel{AD}\times\cancel{\frac{1}{2}}\times\sin 45}{AC\times\cancel{AD}\times\cancel{\frac{1}{2}}\times\sin 30}$ $\frac{AB}{AC}=\frac{6}{4}\times\frac{\frac{1}{2}}{\frac{\sqrt{2}}{2}}=\boxed{\sqrt{2}}$ ۲	
۳	 الف) $\cos\alpha=\frac{1}{2} \Rightarrow \alpha=30°$ $\sin\beta=\frac{1}{2} \Rightarrow \beta=150°$ $\Rightarrow \hat{O}_1=150-30=120°$ $\Rightarrow \hat{C}=\frac{1}{2}\hat{O}_1 \Rightarrow \hat{C}=60°$ $AC=\sqrt{2+\sqrt{3}}$ $S_{ABC}=\frac{3+\sqrt{3}}{4}$ $AC=\sqrt{(\frac{1}{2}-0)^2+(\frac{\sqrt{3}}{2}+1)^2}=\frac{\sqrt{5+2\sqrt{3}}}{2}$ $BC=\sqrt{(-\frac{\sqrt{3}}{2}-0)^2+(\frac{1}{2}+1)^2}=\frac{2\sqrt{3}}{2}=\sqrt{3}$ $S_{A\hat{B}C}=AC\times BC\times\sin\underset{60}{\hat{C}}\times\frac{1}{2} \Rightarrow \frac{\sqrt{5+2\sqrt{3}}}{2}\times\frac{\cancel{2}\sqrt{3}}{\cancel{2}}\times\frac{\sqrt{3}}{2}\times\frac{1}{2}=\boxed{\frac{3\sqrt{5+2\sqrt{3}}}{8}}$ ب) $AB=\sqrt{(\frac{1}{2}+\frac{\sqrt{3}}{2})^2+(\frac{\sqrt{3}}{2}-\frac{1}{2})^2}=\sqrt{2} \Rightarrow \boxed{\text{محیط}=\sqrt{3}+\sqrt{2}+\frac{\sqrt{5+2\sqrt{3}}}{2}}$ محیط $=\sqrt{3}+\sqrt{2}+\sqrt{2+\sqrt{3}}$ ۱	
۴	$S_{A\hat{B}C}=\frac{1}{2}AB\times AC\times\sin\hat{A} \Rightarrow \frac{1}{2}\log_2^{27}\times\log_3^{16}\times\frac{1}{2}=\frac{1}{\cancel{4}}\times 3\underbrace{\log_2^3\times\cancel{4}\log_3^2}_{1}=\boxed{3}$ ۲	
۵	$2x^4-x^2-\sin^2\alpha\,\underbrace{(2\sin^2\alpha-1)}_{\sin^2\alpha-\cos^2\alpha}$ $\;\big\lfloor\, x-\cos\alpha$ $\xrightarrow[\cos\alpha]{x\ \text{بجای}} \underbrace{\cos^4\alpha-\cos^2\alpha}_{\cos^2\alpha(\cos^2\alpha-1)}+\underbrace{\cos^4\alpha-\sin^4\alpha}_{(\sin^2\alpha+\cos^2\alpha)(\cos^2\alpha-\sin^2\alpha)}+\sin^2\alpha\cos^2\alpha$ $\cos^2\alpha(\cos^2\alpha-1)=-\cos^2\alpha\sin^2\alpha$ $(\sin^2\alpha+\cos^2\alpha)(\cos^2\alpha-\sin^2\alpha)=\cos 2\alpha$ 1 $\Rightarrow -\cancel{\cos^2\alpha\sin^2\alpha}+\cos 2\alpha+\cancel{\sin^2\alpha\cos^2\alpha}=\cos 2\alpha=1$ $\Rightarrow \sin 2\alpha=\sqrt{1-1}=\boxed{0}$ ۲	

الف) $y=-2\sin x\cos x+2$ $y=-\sin 2x+2 \Rightarrow T=\frac{2\pi}{\lvert 2\rvert}=\pi$  ۲ ب) $y=2\cos(x+\frac{1}{2})\pi+1$ $y=2\cos(\pi x+\frac{\pi}{2})+1=-2\sin\pi x+1$ $\Rightarrow T=\frac{2\pi}{\lvert\pi\rvert}=2$ 	۶
$y=\cot x$  $y=\sin x$  $\Rightarrow y=f(x)$  $\Rightarrow R_f=[-1,+\infty)$ ۲	۷
$f(x)=a+b\sin(cx)\cos(cx)\cos(2cx)=a+\frac{b}{2}\sin(2cx)\cos(2cx)=a+\frac{b}{4}\sin(4cx)$ $T=\frac{2\pi}{\lvert 4c\rvert}\Rightarrow \frac{\cancel{4\pi}}{10}=\frac{\cancel{4\pi}}{\lvert 4c\rvert}\Rightarrow \lvert 4c\rvert=5 \xrightarrow{c>0} c=\frac{5}{4}$ $\underset{\text{برد}}{max-min=2} \xrightarrow{\times\lvert b\rvert} \underset{\text{نمودار}}{max-min=4} \Rightarrow \lvert b\rvert=2 \xrightarrow[b<0]{c>0} b=-2$ $\Rightarrow \frac{bc}{a}=\frac{-2\times\frac{5}{4}}{2}=\boxed{-\frac{5}{4}}$ انتقال عمودی $\underset{\text{برد}}{0}\xrightarrow{+a}\underset{\text{نمودار}}{2}\Rightarrow a=2$ یا $(a+\lvert b\rvert=4 \Rightarrow a=2)$ $b=8$ $\frac{bc}{8}=5$ ۱٫۵	۸
$f(x)=a\cos bx+c$ $T=\frac{2\pi}{\lvert b\rvert}\Rightarrow\pi=\frac{2\pi}{\lvert b\rvert}\Rightarrow\lvert b\rvert=2 \xrightarrow[\text{فرقی ندارد}\ \pm b]{\cos bx} b=2$ $\lvert a\rvert+c=2$, $-\lvert a\rvert+c=-4$ $\Rightarrow 2c=-2$, $c=-1$ $\lvert a\rvert-1=2$ $\lvert a\rvert=3$ $a=-3$ $(a<0)$ با توجه به نمودار $\Rightarrow f(x)=-3\cos 2x-1$ $-3\cos 2\alpha-1=0$ $3\cos 2\alpha=-1$ $\cos 2\alpha=-\frac{1}{3}\Rightarrow 1+\tan^2 2\alpha=\frac{1}{\cos^2 2\alpha}=\frac{1}{\frac{1}{9}}=9$ $\tan^2 2\alpha=8\Rightarrow \boxed{\lvert\tan 2\alpha\rvert=2\sqrt{2}}$ ۲	۹
$T=3\Rightarrow f(x)=f(x+3k)$, $k\in\mathbb{Z}$ $\Rightarrow f(-34{,}5)=f(1{,}5-36)=f(1{,}5-12(3))=f(1{,}5)$ $\Rightarrow f(x)=-\frac{1}{2}x+1$, $0\leq x<3$ $\Rightarrow f(\frac{3}{2})=-\frac{1}{2}\times\frac{3}{2}+1=\boxed{\frac{1}{4}}$ ۲	۱۰