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

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۲	$f(x) = \frac{8+\cos^3 x}{4-\cos^2 x} \Rightarrow f'(x) = \frac{((-3\sin^2 x)\times(4-\cos^2 x)) - ((2\sin x)\times(8+\cos^3 x))}{(4-\cos^2 x)^2}$ $g(x) = \frac{2}{2-\cos x} \Rightarrow g'(x) = \frac{-2\sin x}{(2-\cos x)^2} = \frac{-2\sin\frac{5\pi}{6}}{(2-\cos\frac{5\pi}{6})^2} = \frac{1}{(2+\frac{\sqrt{3}}{2})^2} = \frac{1}{2+2\sqrt{3}+\frac{3}{4}}$
۳	$f(x) = \|4x-3\|\sqrt{ax}$ $x \geq \frac{3}{4}$: $(4x-3)(\sqrt{ax}) \Rightarrow 4(\sqrt{ax}) + (4x-3)\frac{a}{2\sqrt{ax}} = 4\sqrt{\frac{3a}{4}}$ $x < \frac{3}{4}$: $(-4x+3)(\sqrt{ax}) \Rightarrow -4(\sqrt{ax}) + (-4x+3)\frac{a}{2\sqrt{ax}} = -4\sqrt{\frac{3a}{4}}$ $4\sqrt{\frac{3a}{4}} - (-4\sqrt{\frac{3a}{4}}) = 2\sqrt{6} \Rightarrow 8\sqrt{\frac{3a}{4}} = 2\sqrt{6} \Rightarrow 4\sqrt{\frac{3a}{4}} = 6$ $16 \times \frac{3a}{4} = 36 \Rightarrow 12a = 36 \Rightarrow \boxed{a=3}$
۴	$y = -ax+2 \xrightarrow{x=4} -4a+2$ $y' = -a$ $f(4) + f'(4) = -1 \Rightarrow -4a+2-a = -1 \Rightarrow -5a = -3$ $\boxed{a = \frac{3}{5}}$
۵	$7y - x = 5 \Rightarrow 7y = x+5 \Rightarrow y = \frac{x}{7} + \frac{5}{7}$ $f(x) = \frac{ax-1}{3x+1} = \frac{x+5}{7}$ $f'(x) = \frac{-ax+a+1}{3x+1} = \frac{1}{7}$

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$f(x)=x^3+ax-b$ $8+2a-b=0 \Rightarrow 2a-b=-8 \Rightarrow \overset{-24}{2(-12)}-b=-8 \Rightarrow -b=16$ $b=-16$ $f'(x)=3x^2+a \Rightarrow 3\times 2^2+a=0 \Rightarrow a=-12$ $a+b=-12-16=\boxed{-28}$	۶
	۷
$f(x)=\dfrac{\sqrt{x}+1}{\sqrt{x}-1} \Rightarrow f'(x)=\dfrac{\frac{1}{2\sqrt{x}}\times(\sqrt{x}-1)-\frac{1}{2\sqrt{x}}\times(\sqrt{x}+1)}{(\sqrt{x}-1)^2}=\dfrac{\frac{-2}{2\sqrt{x}}}{(\sqrt{x}-1)^2}$	۸
$f(x)=(x^2+1)^3(ax+1) \Rightarrow f(0)=(1)(1)=1$ $\searrow f(-1)=(2)\times(-a+1)=-2a+2$ $\dfrac{(-2a+2)-1}{0-(-1)}=-11 \Rightarrow -2a+1=-11 \Rightarrow -2a=-12 \Rightarrow a=6$ $x=-2a=-12$ $f'(x)=3(2x)(x^2+1)^2\times(6x+1)+6(x^2+1)^3=3\times-12\times145\times-71+6(145)=$	۹
$y=\sin x\cos 2x \xrightarrow{\frac{\pi}{4}} \sin\frac{\pi}{4}\cos\frac{2\pi}{4} \Rightarrow \frac{\sqrt{2}}{2}\times 0=0$ $\xrightarrow{\frac{\pi}{2}} \sin\frac{\pi}{2}\cos\frac{2\pi}{2} \Rightarrow 1\times-1=-1$ $y=\sin^4x-\cos^4x \Rightarrow (\sin^2x+\cos^2x)(\sin^2x-\cos^2x) \xrightarrow{\frac{\pi}{4}} \left(\frac{\sqrt{2}}{2}\right)^2-\left(\frac{\sqrt{2}}{2}\right)^2=0$ $\xrightarrow{\frac{\pi}{2}} (1)^2-(0)=1$ $\dfrac{\frac{-1-0}{\frac{\pi}{4}-\frac{\pi}{2}}}{} = \dfrac{-1}{1}=\boxed{-1}$	۱۰