نام و نام خانوادگی .امیرعلی تنهایی راد........ پاسخنامه تشریحی تکلیف شماره .۲۶..... کلاس .دوازدهم تیپ B.........

$y = ax+1 \longrightarrow 5 = 3a+1 \longrightarrow 4 = 3a \longrightarrow a = \frac{4}{3}$ $f'(3) = a = \frac{4}{3}$	۱
$\begin{vmatrix}2\\2\end{vmatrix} \quad \begin{vmatrix}-1\\1\end{vmatrix} \quad a = \frac{2-1}{2-(-1)} = \frac{1}{3} \quad y = \frac{1}{3}x + b \longrightarrow 2 = \frac{2}{3} + b \longrightarrow b = \frac{4}{3}$ $y = \frac{1}{3}x + \frac{4}{3}$ $\frac{1}{3}x + \frac{4}{3} = \sqrt{ax-1} \longrightarrow x+4 = 3\sqrt{ax-1} \longrightarrow x^2+8x+16 = 9(ax-1) \Rightarrow$ $x^2+8x+16-9ax+9 = 0 \longrightarrow x^2+(8-9a)x+25 = 0 \longrightarrow \Delta = 0 \longrightarrow (8-9a)^2 - 4(1)(25) = 0$ $(8-9a)^2 = 100 <$ $8-9a = 10 \longrightarrow -2 = 9a \longrightarrow a = -\frac{2}{9}$ غق ؛ $8-9a = -10 \longrightarrow 9a = 18 \longrightarrow a = 2 \longrightarrow f(x) = \sqrt{2x-1} \longrightarrow f(5) = \sqrt{9} = 3$	۲
$y' = \frac{(2x+m)(x+3) - (1)(x^2+mx+1)}{(x+3)^2} = \frac{2x^2+6x+mx+3m-x^2-mx-1}{(x+3)^2} = \frac{x^2+6x+3m-1}{(x+3)^2}$ $f'(1) = \frac{6+3m}{16} = \frac{3}{4} \longrightarrow 6+3m = 12 \longrightarrow m = 2 \quad y = \frac{x^2+2x+1}{x+3} \xrightarrow{x=1} y = 1$ $4y = 3x+n \longrightarrow y = \frac{3}{4}x + \frac{n}{4} \longrightarrow 1 = \frac{3}{4}(1) + \frac{n}{4} \longrightarrow n = 1 \quad m+n = 2+1 = 3$	۳
$f(x) = \frac{(3-\sin x)(9+3\sin x+\sin^2 x)}{(3-\sin x)(3+\sin x)} = \frac{\sin^2 x + 3\sin x + 9}{3+\sin x} \quad 3g(x) = \frac{9}{3+\sin x}$ $3g(x) - f(x) = \frac{-(\sin^2 x + 3\sin x)}{3+\sin x} = \frac{-\sin x(\sin x + 3)}{\sin x + 3} = -\sin x$ $3g'(x) - f'(x) = -\cos x \longrightarrow 3g'(\frac{5\pi}{3}) - f'(\frac{5\pi}{3}) = -\cos\frac{5\pi}{3} = \frac{-1}{2}$	۴
$f'(g(\sqrt[3]{5})) \times g'(\sqrt[3]{5}) = fog'(\sqrt[3]{5})$ $fog(x) = -\frac{1}{\sqrt{\frac{1}{x^5+\lvert x^5\rvert} + \left\lvert\frac{1}{x^5+\lvert x^5\rvert}\right\rvert}} = -\frac{1}{\sqrt[5]{\frac{2}{2x^5}}} = -\frac{1}{\sqrt[5]{\frac{1}{x^5}}} =$ [illegible] $\frac{-1}{\frac{1}{x}} = -x \longrightarrow fog'(x) = -1$	۵

$$f'(0)=\lim_{x\to 0}\frac{f(x)-f(0)}{x}=\lim_{x\to 0}\frac{x\,g(x)+1-1}{x}=\lim_{x\to 0} g(x) \quad f'(0)=\lim_{x\to 0} g(x)$$

$$2(1)\times\frac{\cos^2(1)-(\cos x)(-1)}{}=2\times\frac{2\cos x}{1}=4\cos x \xrightarrow{x=0} 4(1)=4$$ ۶

$$\to \lim_{x\to 0} g(x)=4$$

$$f(x)=-x^2-1,\quad d: y=K \Longrightarrow -x^2-1=K \to x^2=-1-K \to \begin{cases} x_1=\sqrt{-K-1} \\ x_2=-\sqrt{-K-1}\end{cases}$$

$$f'(x)=-2x \Longrightarrow \begin{cases} f'(x_1)=-2\sqrt{-K-1} \\ f'(x_2)=2\sqrt{-K-1}\end{cases} \Longrightarrow f'(x_1)\times f'(x_2)=-4(-K-1)=4K+4=-1 \to 4K=-5 \to \boxed{K=\frac{-5}{4}}$$ ۷

$$y=ax \quad f'(\beta)=a$$

$$f'(x)=\frac{1}{\sqrt{x}}(4x^2+3)+(8x)(2\sqrt{x})=\frac{4x^2+3}{\sqrt{x}}+\frac{16x^2}{\sqrt{x}}=\frac{20x^2+3}{\sqrt{x}}$$

$$f'(\beta)=\frac{20\beta^2+3}{\sqrt{\beta}}=a \longrightarrow 20\beta^2+3=a\sqrt{\beta} \longrightarrow \frac{(8\beta^2+6)\sqrt{\beta}}{20\beta^2+3}=\sqrt{\beta}\to$$ ۸

$$a\beta=2\sqrt{\beta}(4\beta^2+3) \Rightarrow a\beta=8\beta^2\sqrt{\beta}+6\sqrt{\beta} \Rightarrow \sqrt{\beta}(8\beta^2+6)=a\beta$$

$$8\beta^2+6=20\beta^2+3 \to 12\beta^2=3 \to \beta^2=\frac{1}{4} \to \begin{cases}\beta=\frac{1}{2} \\ \beta=-\frac{1}{2}\ \text{غق}\end{cases} \longrightarrow 20\beta^2+3=a\sqrt{\beta} \to 8=a\frac{\sqrt{2}}{2} \to a=\frac{16}{\sqrt{2}}\times\frac{\sqrt{2}}{\sqrt{2}}=8\sqrt{2}$$

۹

$$(f\circ g)'\left(\frac{\sqrt{5}}{2}\right)=f'\left(g\left(\frac{\sqrt{5}}{2}\right)\right)\times g'\left(\frac{\sqrt{5}}{2}\right)=f'(2^+)\times g'\left(\frac{\sqrt{5}}{2}\right)=96\times -4\sqrt{5}$$

$$g\left(\frac{\sqrt{5}}{2}\right)=2^+ \qquad \frac{96\times -4\sqrt{5}}{-48\sqrt{5}}=8$$ ۱۰

$$f'(2^+) \longrightarrow f(x)=8x^3 \Rightarrow f'(x)=24x^2=24\times 4=96$$

$$g'(x)=\frac{-1}{2}\times\frac{2x}{2\sqrt{(x^2-1)^3}}=\frac{-2x}{4\sqrt{(x^2-1)^3}} \to g'\left(\frac{\sqrt{5}}{2}\right)=\frac{-\sqrt{5}}{\frac{1}{4}}=-4\sqrt{5}$$