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

$(2,5)$ $f(2)=0$ $y=ax+b$ $5=2a+1$

$f'(2)=\frac{3}{2}$ $b=1$ $3=2a$ $a=\frac{3}{2}$

$ax+b \longrightarrow a=\frac{2-1}{2+1}=\frac{1}{3}$ ، $b=\frac{3}{2}$ $y=-\frac{1}{3}x+\frac{3}{2}$

$3-x=2\sqrt{ax-1}$ ، $-\frac{1}{3}=\frac{a}{2\sqrt{ax-1}} \longrightarrow x^2+(1-9a)x+25=0$

$(1-9a)^2=100 \longrightarrow a=2$ ، $f(5)=4$

$m=\frac{2}{3} \Longrightarrow y'=\frac{(2x+m)(x+2)-(x^2+mx+1)}{(x+2)^2}=\frac{x^2+4x+2m-1}{(x+2)^2}$

$\xrightarrow{x=1} \frac{4+2m}{12}=\frac{2}{3} \longrightarrow m=2$ ، $x=1 \longrightarrow m+x=3$

$g'(x)=\frac{-2\cos x}{(2+\sin x)^2}$ $f'(x)=\cos-\frac{6\cos}{(\sin x+2)^2}$

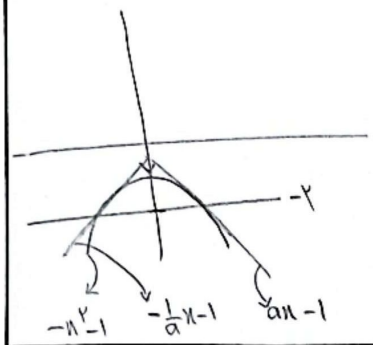
$\Longrightarrow 2g'\left(\frac{5\pi}{3}\right)-f'\left(\frac{5\pi}{3}\right)=\frac{-27+20\sqrt{3}}{121}$

$g' \times f'(g)=(fog)' \longrightarrow fog=-\frac{1}{\sqrt[5]{\frac{1}{x^5+1x^5|}+\left|\frac{1}{x^5+1x^5|}\right|}}=-x$

$(fog)'=-1$

$$f(x)=\left(\frac{\sin x-1}{\sin x+1}\right)^2 = x\,g(x)+1 \longrightarrow g(x)=\frac{\left(\frac{\sin x-1}{\sin x+1}\right)^2-1}{x}$$

$$\lim_{x\to 0} g(x) = \lim_{x\to} \frac{\left(\frac{\sin x-1}{\sin x+1}\right)^2-1}{x} \xrightarrow{\text{هوپیتال}} = \frac{2\left(\frac{\sin x-1}{\sin x+1}\right)\left(\frac{2\cos}{(\sin+1)^2}\right)}{1}_{x=0} = \boxed{-4}$$



$$ax-1=-x^2-1 \quad , \quad -\frac{1}{a}x-1=-x^2-1$$

$$a=1 \qquad x-1 \quad , \quad -x-1$$

$$x-1=-x^2-1 \qquad x=-x^2 \longrightarrow x=-1$$

$$-x-1=-x^2-1 \qquad x=x^2 \longrightarrow x=+1$$

$$-x^2-1 \longrightarrow (x=1) \longrightarrow \boxed{y=-2}$$ فاصله از مبدا مختصات ۲

خط $\longrightarrow ax-b$ از مبدا مختصات می‌گذرد $\Rightarrow b=0$ برخودار $f(x)$ مماس است $\longrightarrow f(x)=ax \;,\; f'(x)=a$

$$2\sqrt{x}\left(4x^2+3\right)=ax \longrightarrow \left(\frac{1}{\sqrt{x}}\right)\left(4x^2+3\right)+\left(2\sqrt{x}\right)(8x)=a=\frac{20x^2+3}{\sqrt{x}}$$

$$\left(2\sqrt{x}\right)\left(4x^2+3\right)=\sqrt{x}\times\frac{20x^2+3}{\sqrt{x}} \longrightarrow 8x^2+6=20x^2+3 \longrightarrow 12x^2-3=0$$

$$x=\begin{cases}+\frac{1}{2}\\ -\frac{1}{2}\text{ غ ق ق}\end{cases} \qquad \boxed{a=8\sqrt{2}}$$

$ax+b$ از مبدا مختصات می‌گذرد $\Rightarrow b=0$ برخودار $f(x)$ مماس است $\longrightarrow f(x)=ax \;,\; f'(x)=a$

$$\frac{\sqrt{x}}{-2x^2+x+1}=ax \quad , \quad a=\frac{6x^2-x+1}{\left(2\sqrt{x}\right)\left(-2x^2+x+1\right)^2}$$

عرض نقطه $A=f\left(\frac{1}{2}\right)=\boxed{\frac{\sqrt{2}}{2}}$

$$\frac{\sqrt{x}}{-2x^2+x+1}=\left(\frac{x}{2\sqrt{x}}\right)\left(\frac{6x^2-x+1}{(-2x^2+x+1)^2}\right) \longrightarrow 6x^2-x+1=-4x^2+2x+2 \Rightarrow x<\begin{cases}\frac{1}{2}\ \checkmark\\ -\frac{1}{5}\times\text{ق ق ق}\end{cases}$$

$$f(x)=(x[x])^2 \;,\; g(x)=\frac{1}{\sqrt{x^2-1}} \longrightarrow f_{og}(x)=\left(\left(\frac{1}{\sqrt{x^2-1}}\right)\left\{\frac{1}{\sqrt{x^2-1}}\right\}\right)^2$$

مشتق چپ $\longrightarrow (f_{og})'(1)=g'(x)\times f'(g(x))=\frac{\sqrt[3]{(x^2-1)^2}}{x}\times 4x\times\frac{\sqrt[3]{(x^2-1)^2}}{x}\times\left(\frac{2}{\sqrt{x^2-1}}\right)^2$

$$=\frac{32\times(x^2-1)^2}{x^2}=32\times\frac{1}{\frac{5}{4}}\times\frac{1}{16}=32\times\frac{4}{5}\times\frac{1}{32}=\boxed{\frac{4}{5}}$$

$$\frac{4}{5\times\sqrt{5}\times-\frac{8}{5}}=\frac{1}{-4\sqrt{5}}=\boxed{\frac{\sqrt{5}}{-20}}$$