نام و نام خانوادگی ....هما طالبی........ پاسخنامه تشریحی تکلیف شماره ...۲۲... کلاس ....

در اشتق پذیر => مشتق ناپذیر → ریشه تکرار ملغی

$$f(x)\begin{cases} a+|x| & x<1 \xrightarrow{\quad} f'_-(1)=1 \\ b\sqrt[3]{x^2} & x\geq 1 \longrightarrow f'_+(1)=\frac{2b}{3} \end{cases} \Rightarrow b=\frac{3}{2}$$

پیوسته : $b = a+1 \to a = \frac{1}{2}$

$$a+b=2$$

۱

$$f(x)=\frac{|2x-4|}{\sqrt[3]{x^2}} \xrightarrow{x=1} \frac{2(2-x)}{\sqrt[3]{x^2}} \xrightarrow{f'} 2\left(\frac{(-1)(\sqrt[3]{x^2})-\frac{2}{3}(x^{-\frac{1}{3}})\cancel{(1)}(2-x)}{\sqrt[3]{x^4}}\right)$$

$$g(x)=\frac{|x-2|+\sqrt{3x}}{\sqrt[3]{x^2}} \longrightarrow \frac{2-x}{\sqrt[3]{x^2}}+\frac{\sqrt{3x}}{\sqrt[3]{x^2}} \xrightarrow{g'=} (\quad)+\frac{\frac{3}{2\sqrt{3x}}(\sqrt[3]{x^2})-\sqrt{3x}\left(\frac{2}{3}(x)^{-\frac{1}{3}}\right)}{\sqrt[3]{x^4}}$$

$$f'-2g' = \cancel{2(\quad)-2(\quad)} - 2\left(\frac{3}{2\sqrt{3}}-\sqrt{3}\left(\frac{2}{3}\right)\right) = -\sqrt{3}+\frac{4\sqrt{3}}{3} = \boxed{\frac{\sqrt{3}}{3}}$$

۲

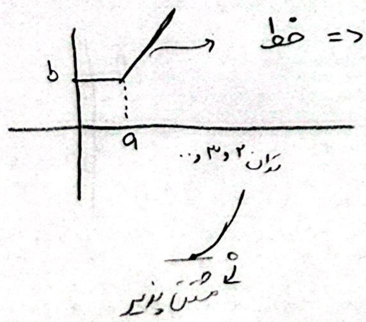
$$f=\begin{cases} bx+c & x<a \longrightarrow f'(x)=b \\ \frac{1}{x} & x\geq a \longrightarrow f'(x)=-\frac{1}{x^2} \end{cases} \longrightarrow b=-\frac{1}{a^2}$$

$$ba^2=-1$$

پیوسته $\longrightarrow$ $ba+c=\frac{1}{a}$

$$\boxed{ac = 1-ba^2} = 1-(-1) = 2$$

۳



خط => $m=1$

انتقال

۴

$$g'f'(g)=(fog)'(x)$$

$$f(g(x))=\frac{1}{\sqrt[3]{\frac{1}{x^3-|x^3|}-\left|\frac{1}{x^3-|x^3|}\right|}} \xrightarrow[\text{در دامنه}]{x=-\sqrt[3]{2}} \frac{1}{\sqrt[3]{\frac{1}{2x^3}-\left|\frac{1}{2x^3}\right|}} = x$$

$$fog'(x)=1$$

۵

$y = -ax - 5 \rightarrow y' = -a$

$x = 3 \xrightarrow{} \text{جا} \Rightarrow f(3) = -3a - 5 = +3(+\frac{3}{2}) - 5 = -\frac{1}{2}$

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

$\frac{f(3)}{f'(3)} = \frac{-\frac{1}{2}}{\frac{3}{2}} = -\frac{1}{3}$ ۶

$f' - f = 2a + 5 = 2$

$2a = -\frac{3}{2}$

$g' = \frac{2x}{3\sqrt[3]{(x^2-1)^2}}$

$f'(x) = \lim_{x \to 2\sqrt{2}} \frac{(x[(x^2+\frac{1}{2})])^2 + 1 - f(a)}{x - 2\sqrt{2}}$

$g'(\frac{3}{\sqrt{x}}) = \frac{4}{\sqrt{2}} = 2\sqrt{2}$

$\xrightarrow{\text{هوپ}} \frac{8 \times 8 \times 2x}{1} = 8 \times 8 \times 2 \times 2\sqrt{2}$ ۷

$g' f'(g) = \frac{2\sqrt{2} \times \cancel{8} \times \cancel{8} \times \cancel{2} \times \cancel{2\sqrt{2}}}{-\cancel{4} \times \cancel{8} \times \cancel{2} \times \cancel{2}\sqrt{2}} = -4\sqrt{2}$

$g(x) = f(x+1) + f(3x+10)$

$g'(x) = (1) f'(x+1) + (3) f'(3x+10)$

$g'(-3) = f'(-1) + 3 f'(+4)$ ۸

$g'(-3) = 4 f'(-1) = 4 \times \frac{3}{2} = 6$

$\lim \frac{(f(5+h) - (2))(f(5-h) - 1)}{(-1)h(5-h)(-1)} = f'(5)\left(\lim \frac{f(5-h) - 1}{h - 5}\right)$

$-\frac{1}{5} f'(5) = -\frac{5}{12}$ ۹

$f'(x) = (1)\sqrt[3]{x+3} + \frac{1}{3}(x+3)^{-\frac{2}{3}}(x-4)$

$f'(5) = 2 + \frac{1}{3} \times \frac{1}{4} = 2 + \frac{1}{12} = \frac{25}{12}$

$y = \frac{3x}{4} + \frac{1}{4}$

$y = x^2 - 4x + 5$

$y' = 2x - 4 = -2$

$(\frac{1}{2}) g'(a) = -1$ ۱۰

$\boxed{x = 1}$

$g'(a) = -2$

$y = 2$