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نام و نام خانوادگی ~~محمد~~ پارسا آخوندی پاسخنامه تشریحی تکلیف شماره ۲۲ کلاس .....

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$a+1=b \quad a+b=\frac{3}{2}+\frac{1}{2}=\frac{4}{2}=2 \quad 1=\frac{2}{3}bx^{-\frac{1}{3}} \rightarrow 1=\frac{2}{3}b(1)^{-\frac{1}{3}} \rightarrow b=\frac{3}{2}$

$x<1 \rightarrow f(x)=a+|x| \rightarrow \begin{cases} a-x & x<0 \\ a+x & 0<x<1 \end{cases}$

$x \geq 1 \rightarrow f(x)=b|x|=bx$

$f'_-(1)=f'_+(1) \rightarrow x=1$

$b=1 \leftarrow a=0 \leftarrow a+b=1$

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

$\frac{\sqrt{2}}{2}$

$-2\times\frac{3}{2\sqrt{2x}}\times\sqrt[3]{x^2}-\frac{2x}{\sqrt[3]{x^5}}\times-2\sqrt{2x} \xrightarrow{x=1} \frac{\left(\frac{-3}{\sqrt{2}}\right)-\left(\frac{2}{3}\times-2\sqrt{2}\right)}{1}$

$\left(\sqrt[3]{x^2}\right)^2$

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$a=1 \rightarrow \begin{cases} \text{مشتق} \rightarrow b+c=1 \\ \text{مشتق} \rightarrow b=-1 \end{cases} \rightarrow c=2 \rightarrow ac=2$

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$x=a \rightarrow \begin{cases} \text{مشتق} \rightarrow 0 \\ \text{مشتق} \rightarrow m(x-a)^{m-1} \end{cases} \rightarrow 0 \neq m(x-a)^{m-1}$

$m \neq 0 \quad m=1$

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$g(x)=-\frac{3}{2}\times\frac{1}{x^{\frac{5}{2}}}$

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

$(fog)'(\sqrt{2})=\left(\frac{-4}{3}\times\frac{1}{2^{\frac{5}{2}}}\right)\times\frac{-4}{3\sqrt[3]{\left(\frac{1}{2}\right)^4}}$

$\frac{1}{2^{\frac{5}{2}}}\times\frac{1}{-\frac{1}{2}^{\frac{5}{2}}}=\frac{1}{-1^{\frac{5}{2}}}=1$

$-a-(-2a-d)=2 \longrightarrow 2a+d=2 \rightarrow a=-\frac{3}{2}$ $\frac{f(3)}{f'(3)}=\frac{-\frac{1}{2}}{\frac{3}{2}}=-\frac{1}{3}$ ۲	۶
$f'(x)=2(x[x^2+\frac{1}{2}])$ $g'(x)=-\frac{2x}{3\sqrt[3]{(x^2-1)^4}}$ $(fog)'(x)=g'(x)\times f'(g(x))$ $(fog)'(\frac{3}{\sqrt{8}})=-\frac{32}{\sqrt{8}}\times 16 \longrightarrow \frac{\frac{-32\times 16}{\sqrt{8}}}{-128\sqrt{2}}=1$ صفر جواب کامل پایین صفحه	۷
$g'(-2)=f'(x+1)+2f'(3x+10)=f'(-1)+2f'(4)$ $\frac{3}{2} \quad 3\times\frac{3}{2}$ $g'(-2)=\frac{12}{2}=6$ ۲	۸
$\lim_{h\to 0}\frac{f^2(5-h)-3f(5-h)+2}{5h-h^2} \xrightarrow{\text{مشتق}} \frac{2f'(5-h)+3f'(5-h)}{5-2h}$ $\longrightarrow \frac{2f'(5)-3f'(5)}{5}=-\frac{f'(5)}{5} \longrightarrow -\frac{\frac{25}{12}}{5}=-\frac{5}{12}$ $1\times\sqrt[3]{x+3}+\frac{x-4}{3\sqrt[3]{(x+3)^2}} \xrightarrow{x=5} 2+\frac{1}{12}=\frac{25}{12}$ ۲	۹
$6y=3x+1 \rightarrow y=\frac{1}{2}x+\frac{1}{6} \rightarrow m=\frac{1}{2} \rightarrow m'=-2$ $x^2-4x+5 \xrightarrow{\text{مشتق}} 2x-4=-2 \rightarrow x=1 \rightarrow (1)^2-4(1)+5=2$ نقطه: $(1,2)$ ۲	۱۰

سوال ۷

$y = f(g(x)) \rightarrow y' = g'(x) f'(g(x)) \xrightarrow{x=\frac{\pi}{\sqrt{8}}} y' = g'\left(\frac{\pi}{\sqrt{8}}\right) f'\left(g\left(\frac{\pi}{\sqrt{8}}\right)\right) \rightarrow y' = g'\left(\frac{\pi}{\sqrt{8}}\right) f'(2)$

$g(x) = \frac{1}{\sqrt[3]{2x^2-1}} = (2x^2-1)^{-\frac{1}{3}} \rightarrow g'(x) = -\frac{1}{3}(2x^2-1)^{-\frac{4}{3}} \times 4x = -\frac{4}{3}x(2x^2-1)^{-\frac{4}{3}}$

$g'\left(\frac{\pi}{\sqrt{8}}\right) = \frac{-4}{3} \times \frac{\pi}{\sqrt{8}} \left(\frac{1}{8}\right)^{-\frac{4}{3}} = \frac{-4}{\sqrt{8}} \times 4^4 = -\frac{4^5 \times \sqrt{2}}{2^3} = -4^2\sqrt{2} \rightarrow g'\left(\frac{\pi}{\sqrt{8}}\right) = -8\sqrt{2}$

$f(x) = 12x^2 + 1 \rightarrow f'(x) = 24x \rightarrow f'(2) = 48$

$y' = g'\left(\frac{\pi}{\sqrt{8}}\right) f'(2) = -8\sqrt{2} \times 48 = 4 \times (-192\sqrt{2}) \rightarrow$ گزینه ۴