نام و نام خانوادگی ..[illegible].......... پاسخنامه تشریحی تکلیف شماره ..۲۴.. کلاس ..دوازدهم تجربی B..........

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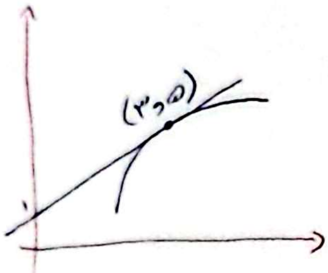

$f'(3) = \frac{5-1}{3-0} = \frac{4}{3}$

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$f'(x) = \frac{a}{2\sqrt{ax-1}} \rightarrow \frac{a}{2\sqrt{a(A)-1}} = \frac{1}{3} \rightarrow 3a = 2\sqrt{aA-1} \rightarrow 9a^2 = 4aA-4$

$(2,2),(-1,1) \rightarrow m = \frac{2-1}{2-(-1)} = \frac{1}{3} \rightarrow y-1 = \frac{1}{3}(x+1) \rightarrow y = \frac{1}{3}x + \frac{4}{3}$

$\frac{1}{3}A + \frac{4}{3} = \sqrt{aA-1}$

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$f(x) = \frac{x^2+mx+1}{x+3} \rightarrow f'(x) = \frac{x^2+6x+3m-1}{(x+3)^2} \Rightarrow f'(1) = \frac{1+6+3m-1}{16} = \frac{3}{4}$

$\downarrow$ $6+3m = 12$ $\downarrow$ $m = 2$

$4y - 3x = n \rightarrow m = \frac{3}{4}$

$f(1) = \frac{1+2(1)+1}{1+3} = 1$

$4(1) - 3(1) = n \rightarrow n = 1$

$m + n = 3$

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$f(x) = \frac{27 - \sin^3 x}{9 - \sin^2 x} = \frac{9 + 3\sin x + \sin^2 x}{3 + \sin x} = \frac{\sin^2 x + 3\sin x + 9}{\sin x + 3} \rightarrow f'(x) = \frac{\sin^2 x + 6\sin x}{(\sin x + 3)^2}(\cos x)$

$g(x) = \frac{3}{3+\sin x} \rightarrow g'(x) = \frac{-3\cos x}{(3+\sin x)^2} \rightarrow g'(\frac{5\pi}{6}) = \frac{-\frac{3}{2}}{(3-\frac{\sqrt{3}}{2})^2}$

$f'(\frac{5\pi}{6}) = \frac{\frac{3}{4} - \frac{6\sqrt{3}}{2}}{(3-\frac{\sqrt{3}}{2})^2}$

$3g'(\frac{5\pi}{3}) - f'(\frac{5\pi}{3}) = \frac{-\frac{9}{2} - \frac{3}{4} + \frac{6\sqrt{3}}{2}}{(3-\frac{\sqrt{3}}{2})^2} = \frac{-21+12\sqrt{3}}{39-12\sqrt{3}}$

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$g(x) = \frac{1}{x^5+|x^5|} \xrightarrow{x=\sqrt[5]{3}} \frac{1}{2x^5}$

$f(x) = \frac{1}{\sqrt[5]{x+|x|}} \xrightarrow{x=g(\sqrt[5]{3})} \frac{1}{\sqrt[5]{2x}}$

$g'(\sqrt[5]{3})f'(g(\sqrt[5]{3})) = (fog)'(\sqrt[5]{3})$

$fog(x) = \frac{1}{\sqrt[5]{\frac{2}{2x^5}}} = \frac{1}{\frac{1}{x}} = x$

$\downarrow$

$(fog)'(x) = 1$

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$f(x) = \dfrac{\sin^2 x - 2\sin x + 1}{\sin^2 x + 2\sin x + 1}$ $\qquad f(x) = x\,g(x) + 1 \rightarrow \dfrac{\sin^2 x - 2\sin x + 1}{\sin^2 x + 2\sin x + 1} - 1 = x\,g(x)$

$\dfrac{-4\sin x}{\sin^2 x + 2\sin x + 1} \times \dfrac{1}{x} = g(x)$ $\qquad \lim\limits_{x \to 0} \dfrac{-4\sin x}{\sin^2 x + 2\sin x + 1} \times \dfrac{1}{x} \xrightarrow{\text{هم‌ارزی}} \lim\limits_{x \to 0} \dfrac{-4x}{x^2 + 2x + 1} \times \dfrac{1}{x}$

$\rightarrow \lim\limits_{x \to 0} g(x) = \dfrac{-4}{1} = -4$

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$y = x^2 + 1 \xrightarrow[\text{محور } x]{\text{قرینه نسبت به}} y = -x^2 - 1 \longrightarrow y' = -2x$

↓ دو نقطه ای که خط d قطع می کند طول های قرینه دارند

$\left|\dfrac{m' - m}{1 + m'm}\right| = \left|\dfrac{2x - (-2x)}{1 - 4x^2}\right| = \tan 90^\circ \rightarrow 1 - 4x^2 = 0 \rightarrow x = \dfrac{1}{4}$

$-x^2 - 1 \xrightarrow{x = \frac{1}{4}} -\dfrac{1}{16} - 1 = -\dfrac{17}{16} \xrightarrow{\text{d تا مبدأ}} \dfrac{17}{16}$

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$m = \dfrac{2\sqrt{x}\,(4x^2 + 3) - 0}{x - 0}$

$f'(x) = \dfrac{4x^2 + 3}{\sqrt{x}} + 16x\sqrt{x} = \dfrac{20x^2 + 3}{2\sqrt{x}}$ $\qquad \dfrac{2\sqrt{x}\,(4x^2 + 3)}{x} = \dfrac{20x^2 + 3}{2\sqrt{x}}$

$8x^2 + 6 = 20x^2 + 3 \rightarrow 12x^2 = 3 \rightarrow x^2 = \dfrac{1}{4}$ (تابع فقط ...) $x = \dfrac{1}{2}$

شیب $= f'\left(\dfrac{1}{2}\right) = \dfrac{5 + 3}{\sqrt{\frac{1}{2}}} = \dfrac{8}{\sqrt{\frac{1}{2}}} = 8\sqrt{2}$

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$m = \dfrac{\dfrac{\sqrt{x}}{-2x^2 + x + 1} - 0}{x - 0}$ $\qquad \dfrac{1}{\sqrt{x}\,(-2x^2 + x + 1)} = \dfrac{6x^2 - x + 1}{2\sqrt{x}\,(-2x^2 + x + 1)^2}$

$f'(x) = \dfrac{\dfrac{-2x^2 + x + 1}{2\sqrt{x}} - \sqrt{x}\,(-4x + 1)}{(-2x^2 + x + 1)^2} = \dfrac{\dfrac{6x^2 - x + 1}{2\sqrt{x}}}{(-2x^2 + x + 1)^2}$

$6x^2 - x + 1 = -4x^2 + 2x + 2 \rightarrow 10x^2 - 3x - 1 \rightarrow x = \dfrac{1}{2}$, ~~$x = -\dfrac{1}{5}$~~ غ ق ق

$\dfrac{\sqrt{x}}{-2x^2 + x + 1} \xrightarrow{x = \frac{1}{2}} \dfrac{\sqrt{\frac{1}{2}}}{-\frac{1}{2} + \frac{1}{2} + 1} = \dfrac{1}{\sqrt{2}} = \dfrac{\sqrt{2}}{2}$

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$(f \circ g)'_-\left(\dfrac{\sqrt{5}}{2}\right) = g'_-\left(\dfrac{\sqrt{5}}{2}\right) f'_-\left(g\left(\dfrac{\sqrt{5}}{2}\right)\right) = \dfrac{\sqrt{5}}{1} \times 24 \times 4 = 96\sqrt{5}$

$\dfrac{96\sqrt{5}}{-48\sqrt{5}} = -2$

$g'(x) = \dfrac{2x}{2\sqrt{x^2 - 1}}$

$f(x) \xrightarrow[g_-\left(\frac{\sqrt{5}}{2}\right) = 2^+]{x = g\left(\frac{\sqrt{5}}{2}\right)} f(x) = (2x)^3 \rightarrow f'(x) = 24x^2$