

$$\lim_{x \rightarrow 1^-} f(x) = \lim_{x \rightarrow 1^+} f(x) = f(1) \rightarrow b = a+1 \rightarrow b-a=1 \quad \text{این نریس}$$

$$f'_+(1) = \frac{rb}{\sqrt[3]{x}} = \frac{rb}{\sqrt[3]{1}}$$

$$rb = 1$$

$$b = \frac{3}{4} \quad a = \frac{1}{4}$$

$$a+b = \frac{1}{2}$$

$$f'_-(1) = 1$$

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

$$\frac{-2\sqrt{x} \cdot x^{\frac{1}{4}}}{x^{\frac{3}{4}}} = -2\sqrt{x} \cdot x^{-\frac{1}{4}} \rightarrow (f-g)'(x) = \frac{2\sqrt{x}}{x^{\frac{5}{4}}} = \frac{2}{\sqrt{x}}$$

$$(f-g)'(1) = \frac{2\sqrt{1}}{1} = 2$$

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$$\lim_{x \rightarrow a^-} f(x) = \lim_{x \rightarrow a^+} f(x) = f(a) \rightarrow \frac{1}{a} = ab+c$$

$$a^2b+ac=1$$

$$f'_+(a) = f'_-(a) \rightarrow -\frac{1}{x^2} = b \rightarrow -\frac{1}{a^2} = b$$

$$a^2b = -1$$

$$ac = 2b$$

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$$f \text{ نه قابل تمایز} \rightarrow f_-(a) \neq f'_+(a)$$

$$m=0 \rightarrow f_-(a) = f'_+(a) \times \infty$$

$$m=1 \rightarrow \begin{cases} f_-(a) = 0 \\ f'_+(a) = 1 \end{cases} \rightarrow f_-(a) \neq f'_+(a)$$

$$m, r \rightarrow \begin{cases} f_-(a) = 0 \\ f'_+(a) = 0 \end{cases} \rightarrow f_-(a) = f'_+(a)$$

مقدار صحیح m

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$$g(x) = \frac{1}{x^2+x^2} = \frac{1}{2x^2}$$

$$f(x) = \frac{1}{\sqrt[3]{2x}}$$

۵- در ازای f اعداد $(\oplus)$ و f و تعریف نشده هستند

$$f \circ g = \frac{1}{\sqrt[3]{2x \cdot \frac{1}{2x^2}}} = x$$

$$f \circ g'(x) = 1$$

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$$f(r) = -ra - \delta$$

$$f'(r) = -a$$

$$f'(r) - f(r) = -a + ra + \delta = 2$$

$$ra + \delta = 2 \quad a = -\frac{3}{r}$$

$$f(r) = \frac{3}{r} - \delta = -\frac{1}{r}$$

$$f'(r) = \frac{3}{r^2}$$

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$$\frac{-1/r}{3/r^2} = -\frac{1}{3r}$$

$$f \circ g'(x) = g'(x) \cdot f'(g(x)) \quad g'(x) = (x^2 - 1)^{-1/2}$$

آزمین فیزی

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$$g'(x) = -\frac{1}{2} (x^2 - 1)^{-3/2} \times 2x \rightarrow g'\left(\frac{3}{\sqrt{2}}\right) = -\frac{1}{\sqrt{2}} \quad g\left(\frac{3}{\sqrt{2}}\right) = 2$$

$$f'(x) \rightarrow f(x) = 14x^2 + 1 \quad f'(x) = 28x \rightarrow f'(2) = 56$$

(2)

$$\frac{f \circ g'(x)}{-128\sqrt{2}} = \frac{-\frac{1}{\sqrt{2}} \times 56}{-128\sqrt{2}} = \frac{1}{2} \checkmark$$

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

$$g'(-1) = f'(-1) + 3f'(1) = \frac{3}{4} + \frac{9}{4} = \frac{12}{4} = 3$$

✓ $f'(-1) = f'(1) = f'(9) \leq 0$ دوره تناوب -1

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$$f'(x) = \sqrt{x+3} + \frac{1}{3\sqrt{(x+3)^3}} (x-4) \rightarrow f'(0) = 2 + \frac{1}{12} = \frac{25}{12}, \quad f(0) = 2$$

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$$\lim_{h \rightarrow 0} \frac{f'(0-h) - 3f'(0-h) + 2}{h(0-h)} \xrightarrow{\text{میشال}} \frac{-2f'(0-h)f'(0-h) + 3f'(0-h)}{0-h-h}$$

$$= \frac{-2f'(0)f'(0) + 3f'(0)}{0} = -\frac{0}{12}$$

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$$4y - 3x = 1 \rightarrow y = \frac{1}{4}x + \frac{1}{4} \rightarrow m_{\text{مماس}} = -2 \Rightarrow f'(x) = -2$$

$$f'(x) = 2x - 4 \rightarrow 2x - 4 = -2 \quad 2x = 2 \quad x = 1 \quad y = 2$$

$$\left| \frac{1}{2} \right| \checkmark$$

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