

۱۵۱۲۵

استریمیتاسیون دوازدهم

$$\lim_{n \rightarrow 1^-} \lim_{n \rightarrow 1^+} f(n) \rightarrow a+1 \neq b$$

$$f'(1) = f'(1) \rightarrow \dots \rightarrow 1 = \frac{b \times 2n}{\sqrt[n]{n^2}} \xrightarrow{n=1} 1 = \frac{2b}{3}$$

$$\begin{cases} a = 0.5 \\ b = 1.5 \end{cases}$$

$$a+b = 2 \quad \checkmark$$

(۲)

$$h(1) = (f - rg)'(1) = ? \quad \frac{2(1-1) + \sqrt{1}}{\sqrt[3]{1^2}} + \frac{|1-1|}{\sqrt[3]{1^2}} = \frac{1}{1} = 1$$

(۵)

$$h'(n) = \frac{-\frac{2 \times 3}{\sqrt[3]{n^2}} \times \sqrt[3]{n^2} + \frac{2n \times 2\sqrt[3]{n^2}}{\sqrt[3]{n^2}}}{\sqrt[3]{n^2}} + \frac{|2n-1|}{\sqrt[3]{n^2}} = \frac{-2 + 4n}{\sqrt[3]{n^2}} + \frac{|2n-1|}{\sqrt[3]{n^2}}$$

(جواب پسین لیکه)

$$h'(1) = ? \rightarrow h'(1) = \frac{4\sqrt[3]{1}}{\sqrt[3]{1^2}} + \frac{-1}{\sqrt[3]{1}} = \frac{4}{1} - 1 = 3$$

$$I: \frac{1}{ab+c} : ab+c = \frac{1}{a}$$

$$II: \frac{1}{f'(a)} = f'(a) \rightarrow b = \frac{-1}{a^2}$$

$$\frac{-1}{a^2} + ca = 1 \rightarrow ac = 1 + \frac{1}{a^2}$$

-۳

(۲)

۲- m نمی تواند صفر باشد چون تابع صفر می شود اما می تواند m باشد تابع همایی فقط مذکور
۳- اما m غیر از ۱ باشد تابع همایی فقط مذکور خواص دارد

(۲)

تستی متد

$$(1) f \circ g'(n) = ?$$

$$f \circ g(n) = \frac{1}{\sqrt[3]{2g}} = x, \quad m < 0$$

$$g(n) = \begin{cases} x & n \geq 0 \\ \frac{1}{n^2} & n < 0 \end{cases}$$

$$f \circ g(-\sqrt{2}) = -\sqrt{2} \rightarrow f \circ g(n) = x \rightarrow (f \circ g(n))' = 1$$

$$f \circ g(n) = f\left(\frac{1}{\sqrt[3]{2g}}\right) = \frac{1}{\sqrt[3]{2g \left(\frac{1}{\sqrt[3]{2g}}\right)}} = x$$

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

طبق باره شود

$$-a + a + \frac{1}{3}a = 1$$

$$f(x) = -a - \frac{1}{3}a$$

$$\rightarrow a = -\frac{1}{4}a$$

$$f = \frac{f(x)}{f'(x)} = \frac{-\frac{1}{4}a}{-\frac{1}{3}a} = \boxed{\frac{3}{4}}$$

۲

$$f(x) = (x)^2 + 1 \rightarrow f_{\text{log}} = \frac{1}{\sqrt{(x^2-1)^2}} + 1$$

۰.۱

$$\left[\frac{9}{x} + \frac{x}{9} \right] = 1$$

$$(f_{\text{log}})'(x) = -\frac{2}{x^3} \times (x^2-1)^{-\frac{3}{2}} (2x)$$

$$f_{\text{log}}'\left(\frac{3}{\sqrt{2}}\right) = -\frac{2}{x^3} \times 3 \times 2 \times \frac{1}{\sqrt{2}} = -12\sqrt{2} \rightarrow \boxed{\frac{1}{12\sqrt{2}}}$$

جواب حاصل ماسن لست

۸ - f متناوب است پس f هم متناوب باقیان (در صورتی که)

$$g'(x) = f'(x+1) + f'(x+1) \times 2$$

$$g'(-1) = f'(-1) + f'(-1) \times 2 = f'(-1) + 2 \times f'(-1) = \boxed{3}$$

۲

$$\lim_{h \rightarrow 0} \frac{f'(a-h) - f'(a-h) + 2}{-h^2 + ah} \xrightarrow{\text{Hôp}} \lim_{h \rightarrow 0} \frac{-2f'(a-h) + f'(a-h) + 2}{-2h + a}$$

$$= \frac{-2f(a) + f(a) + 2}{a} = \frac{-f(a) + 2}{a} = \boxed{\frac{-a}{12}}$$

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

۲

$$y = x+1$$

$$y = \frac{1}{3}x + \frac{1}{3} \xrightarrow{\text{مقیاس بندی}} m_2 - 1 = 1m - 2 \rightarrow \boxed{n = 1} \quad y = 2$$

۱/۱۵

سوال ۱۲

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

$$f'(x) = \left(\frac{-2x+1}{\sqrt[3]{2x^2}} \right)' = \frac{-2(1) - \frac{2}{3\sqrt[3]{2x}}(2)}{\sqrt[3]{2x^2}} \rightarrow f'(1) = \frac{-2(1) - \frac{2}{3}(2)}{1} = -\frac{10}{3}$$

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

$$g'(x) = \frac{\left(-1 + \frac{1}{\sqrt{2x}}\right)(1) - \frac{2}{3\sqrt[3]{2x}}(1+\sqrt{2})}{\sqrt[3]{2x^2}} \rightarrow g'(1) = \frac{\left(-1 + \frac{1}{\sqrt{2}}\right) - \frac{2}{3}(1+\sqrt{2})}{1} = -\frac{8}{3} - \frac{\sqrt{2}}{3}$$

$$f'(1) - 2g'(1) = -\frac{10}{3} - 2\left(-\frac{8}{3} - \frac{\sqrt{2}}{3}\right) = \frac{\sqrt{2}}{3}$$

$$y = f(g(x)) \rightarrow y' = g'(x) f'(g(x)) \xrightarrow{x=\frac{1}{\sqrt{2}}} y' = g'\left(\frac{1}{\sqrt{2}}\right) f'\left(g\left(\frac{1}{\sqrt{2}}\right)\right) \rightarrow y' = g'\left(\frac{1}{\sqrt{2}}\right) f'(1) \quad \text{سوال ۱۳}$$

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

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

$$f(x) = 19x^2 + 1 \rightarrow f'(x) = 38x \rightarrow \underline{f'(1) = 38}$$

$$y' = g'\left(\frac{1}{\sqrt{2}}\right) f'(1) = -\frac{4}{3} \times 38 = 38 \times \left(-\frac{4}{3}\right) \rightarrow \underline{-\frac{152}{3}}$$