

$$a+1=b \quad f(x) = \begin{cases} a+|x| & x < 1 \\ b\sqrt{x} & x \geq 1 \end{cases} \rightarrow \begin{matrix} n=0 \\ \text{نقطه‌ای نوشتن} \end{matrix} \rightarrow \begin{matrix} n=1 \\ \text{مشتق بگیر} \end{matrix} \quad (1)$$

$$f(x) = \begin{cases} 1 \\ b\sqrt{x} \end{cases} \rightarrow f(1) = 1 = \frac{b(1)}{1} \rightarrow b = \frac{1}{1} \text{ و } a = \frac{1}{1}$$

$$\begin{aligned} (f \circ g)'(x) &= f'(x) \cdot g'(x) = \left(\frac{|2x-1| - 2(1x-1) + \sqrt{2x}}{\sqrt{2x}} \right)' = \left(\frac{-\sqrt{2x}}{2x^2} \right)' \\ &= - \left(\frac{1 \times 1 \times \sqrt{2x} - 2\sqrt{2x}(2x)}{2x^2} \right) \xrightarrow{n=1} \frac{1 \times 1 \times \sqrt{2} - 2\sqrt{2} \times 1}{2 \times 1^2} = \frac{1\sqrt{2} - 2\sqrt{2}}{2} = -\frac{\sqrt{2}}{2} \end{aligned}$$

$$f(x) = \begin{cases} b+cx & x < a \\ \frac{1}{x} & x \geq a \end{cases}$$

$$f(a) = \lim_{x \rightarrow a} f(x) \rightarrow b+ca = \frac{1}{a} \quad \text{I}$$

$$\text{I, II} \rightarrow \frac{1}{ax} + c = \frac{1}{a} \rightarrow c = \frac{1}{a} \rightarrow ac = 1$$

$$f'(x) = \begin{cases} b & x < a \\ -\frac{1}{x^2} & x \geq a \end{cases} \quad \text{II} \quad b = -\frac{1}{a^2}$$

$$f(x) = \begin{cases} b & x < a \\ b+(x-a)^m & x \geq a \end{cases} \rightarrow f'(x) = \begin{cases} 0 & x < a \\ m(x-a)^{m-1} & x \geq a \end{cases}$$

اگر داشتیم هر چیزی هم می‌تواند مقادیر منفی و در آن صورت نیز همای چپ و راست هم را بنویسیم و بنویسیم

$$(f \circ g)'(x) = f'(g(x)) \cdot g'(x) \quad (f \circ g)(\sqrt{x}) = \frac{1}{\sqrt{x}} \quad \xrightarrow{n=\sqrt{x}} \frac{1}{\sqrt{x}} = \frac{1}{\sqrt{x} \times \sqrt{x}} = \frac{1}{x}$$

$$g(x) = f(x) = -x^2 - 1$$

$$g'(x) = f'(x) = -2x \rightarrow -2(x + \frac{1}{x}) + 1 = 1 \rightarrow x = -\frac{1}{x}$$

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

$$(f \circ g)' = f' \circ g \times g' \rightarrow g'(x) = \frac{f'(x)}{f'(x)} = 1$$

$$g(\frac{1}{x}) = x \rightarrow f(x) = (x^2 + 1)^2 + 1 \rightarrow f'(x) = 2(x^2 + 1) \times 2x = 4x(x^2 + 1)$$

$$f(x) = f(x+1) \rightarrow f'(x) = f'(x+1) \xrightarrow{x=0} f'(0) = f'(1)$$

$$g'(x) = f'(x+1) + x f'(x+1) \xrightarrow{x=1} g'(1) = f'(2) + 1 f'(2) = 2 f'(2) = 2 \times 4 \times 2 \times 3 = 48$$

$$\lim_{h \rightarrow 0} \frac{f(a+h) - x f(a-h) + 1}{h(a-h)} = \lim_{h \rightarrow 0} \frac{f(a) + f'(a)h + \frac{1}{2}f''(a)h^2 - x(f(a) - f'(a)h + \frac{1}{2}f''(a)h^2) + 1}{h(a-h)}$$

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

$$99 - 100 = 1 \rightarrow \text{شعب} = \frac{1}{2} = 1 \rightarrow \text{شعب} = 1$$

$$g' = 100 - 2 = 98 \rightarrow x = 1 \quad g(1) = 1 - 2 + 0 = -1 \rightarrow A(1, -1)$$

نویسندگی - تکلیف ۲۲