

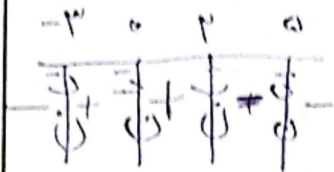
$$a(L(n)) \geq 0$$



$$D_L = [-5, 0] \cup [2, 5]$$

1

$$L(n) \geq 0$$



$$D_L = (-3, 0) \cup (2, 5)$$

$$-3, -1, 1 \rightarrow \text{مجموعه } D_L$$

2

$$L(n) - L(1) = a^2 - 1a + 1 \quad L(-1) = ?$$

$$L(1) - L(1) = 1 - 1 + 1 = 1$$

$$L(-1) - L(-1) = 1 - 1 + 1 = 1$$

$$L(1) = 1$$

$$L(-1) = 1$$

$$L(1) = 1$$

3

$$L(n) = \begin{cases} n - \sqrt{n+1} & n > 1 \\ 1a + 1 & n \leq 1 \end{cases}$$

$$L(L(0)) + L(L(1)) = ? \rightarrow 1 + 1 = 2$$

$$L(1) = 1a + 1 = 1 + 1 = 2$$

$$L(0) = 0 - \sqrt{0+1} = -1$$

$$L(1) = 1a + 1 = 1 + 1 = 2$$

$$L(0) = 1$$

4

$$L(n) = a n^2 - b n + 1$$

$$L(n-1) - L(n) = 1a + 1$$

$$n=1 \rightarrow L(1) - L(1) = 1a + 1$$

$$0 = 1a + 1 - (a - b + 1) = 1$$

$$-a + b = 1$$

$$b - a = 1 \rightarrow a - b = -1$$

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$$f(x) = x^x - ex + 9$$

$$f(0) = 0 - 0 + 1 = 1 \quad f(1) = 1 + 9 + 1 = 11$$

$$f(2) = 4 - 2 + 1 = 3$$

$$\frac{f(2) + f(-1)}{f'(2)}$$

$$\frac{2 + 11}{(-1)^2} = \frac{13}{1} = 13$$

6

$$f(x) = \begin{cases} x^{x+1} & x \geq 1 \\ x^x & x < 1 \end{cases}$$

$$f(2) = 2^3 = 8$$

$$f(-2) = (-2)^{-2} = \frac{1}{4}$$

$$f(1) = 1 + 1 = 2$$

$$\frac{f(2) - f(-2)}{f(1)} = \frac{8 - \frac{1}{4}}{2} = \frac{31.75}{2} = 15.875$$

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$$f = \{(1, 4), (2, 1), (3, 1), (4, 1)\} \quad f(2) = 1 \quad f(3) = 1$$

$$f(1) = 4 \quad f(4) = 1$$

$$\frac{f(f(1)) - f(f(2))}{f(1) - 2} = \frac{4 - 1}{4 - 2} = \frac{3}{2} = 1.5$$

8

$$f(x) = \frac{x^x - ex + 9}{x^x + ex + 1} \quad f(f(\sqrt{e} - 1)) = ?$$

$$f(1) = \frac{1 - e + 9}{1 + e + 1} = \frac{10 - e}{2 + e}$$

$$f(\sqrt{e} - 1) = \frac{(\sqrt{e} - 1)^{\sqrt{e} - 1} - e(\sqrt{e} - 1) + 9}{(\sqrt{e} - 1)^{\sqrt{e} - 1} + e(\sqrt{e} - 1) + 1}$$

9

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

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

$$f(\sqrt{x}) = x + \frac{1}{x} \rightarrow (x + \frac{1}{x})^x = x^x + \frac{1}{x^x} + \frac{1}{x^x} + \frac{1}{x^x}$$

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