

فاطمه سلیمانی / تالیف شده ✓ ۱۹، ۷۵ (مرد دفتر)

$$y = \sqrt{x f(x)}$$

سوال (۱)

$$x f(x) \geq 0$$

$$\rightarrow -d, 2, d$$

✓

$$-d + 0 - 2 + d = -2$$

$$D_f = [-d, 0] \cup [2, d]$$

$$y = \sqrt{\frac{-x}{f(x)}} \quad \frac{-x}{f(x)} \geq 0$$

$$\rightarrow -3, 0, 2, d$$

۱، ۷۵

سوال (۲)

$$D_f = (-3, 0) \cup (0, 2) \cup (d, \infty)$$

نقطه را نام ندارد

تعداد عددهای صحیح ~~چهار~~ عدد صحیح

$$-2x - 2x^2$$

سوال (۳)

$$f(x) = 2f(2), x^2 - 3x + 4$$

$$f(2) = 2f(2), 4 - 6 + 4$$

$$-f(2) = 2$$

$$f(2) = 2$$

✓

$$f(x) + 4 = x^2 - 3x + 4$$

$$f(-2) + 4 = 4 + 6 + 4 \quad x = -2$$

$$f(-2) = 10$$

$$f(x) = \begin{cases} x - \sqrt{x+4} & x > 4 \\ 2x+3 & x \leq 4 \end{cases}$$

$$x+2 \geq 9$$

✓

$$f(f(4)) = f(f(1))$$

$$4 - \sqrt{4+4} = 2$$

$$x+2 \geq 9 \quad x \geq 7$$

$$2 \geq 1+3 \geq 4$$

$$4 - \sqrt{4+4} \geq 2$$

سوال (۴)

$$a(n-1)^2 - b(n-1) + 2 = an^2 + bn - 2 = 9n+2$$

$$n^2 - 2n + 1$$

$$a-b \geq ?$$

$$-3-d \geq -1$$

سوال (۵)

$$an^2 - 2an + a - b/n + b + 2 = an^2 + b/n + 4n+2$$

$$-2a \geq 4 \geq a-3$$

$$a+b = 2 \geq b \geq d$$

$$f(x) = x^2 - 3x + 1 \Rightarrow \frac{f(3) + f(-1)}{f'(2)} \rightarrow \frac{2+1-4}{(-1)^2} = \frac{-1}{1} = -1 \quad (\text{سوال 6})$$

$$f(3) = 9 - 9 + 1 = 1 \quad f(-1) = 1 - 3 + 1 = -1 \quad f'(2) = 2 - 3 = -1$$

$$\frac{3f(4) - 2f(-2)}{f'(2)} = \frac{39 - 2 \times 4}{2} = \frac{31}{2} \quad (\text{سوال 7})$$

$$f(4) = 16 - 12 + 1 = 5 \quad f(-2) = 4 - 6 + 1 = -1 \quad f'(2) = 2 - 3 = -1$$

$$\frac{f(f(4)) - f(f(3))}{f'(1) - 2} = \frac{4 - 9}{4 - 2} = \frac{-5}{2} = -\frac{5}{2} \quad (\text{سوال 8})$$

$$\frac{f(f(\sqrt{3}-2))}{f'(2)} = \frac{f(1) + 9}{4 + 1 + 4} = \frac{10}{9} \quad (\text{سوال 9})$$

$$f(\sqrt{3}-2) = \frac{(\sqrt{3}-2)^2 + 4(\sqrt{3}-2) + 9}{(\sqrt{3}-2)^2 + 4(\sqrt{3}-2) + 4} = \frac{3 - 4\sqrt{3} + 4 + 4\sqrt{3} - 8 + 9}{3 - 4\sqrt{3} + 4 + 4\sqrt{3} - 8 + 4} = \frac{8}{2} = 4$$

$$= \frac{4}{9} = \frac{4}{9}$$

$$(f(\sqrt{n}))' - f'(n) = \quad (\text{سوال 10})$$

$$f(\sqrt{n}) = (\sqrt{n})^2 + \frac{1}{(\sqrt{n})^2} = n + \frac{1}{n} \xrightarrow{'} n' + \left(\frac{1}{n}\right)' = n' + \frac{-1}{n^2} = n' - \frac{1}{n^2}$$

$$n' + 1 + \frac{-1}{n^2} - n' - \frac{1}{n^2} = 2 - \frac{2}{n^2} \quad (\text{سوال 10})$$