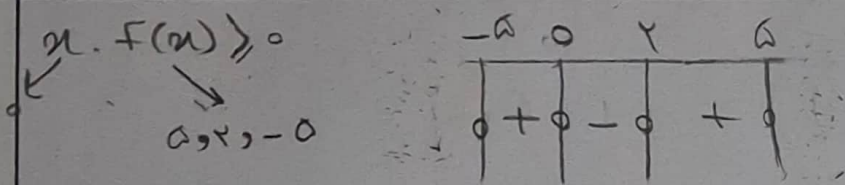
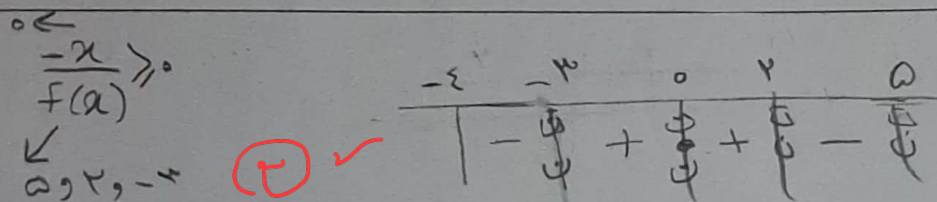


پاشنامه



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

✓



$$D_f = (-3, 0) \cup (0, 2) \rightarrow \text{اعداد صحیح مانند } -2, -1, 1, 2$$

← ۳ عدد صحیح و عدد ۰

$$x=2 \rightarrow f(2) - 2f(2) = f - 6 + f \rightarrow -f(2) = 2 \rightarrow f(2) = -2$$

$$x=-2 \rightarrow f(-2) + 2 = 2 + 6 + 2 \rightarrow f(-2) = 10 \checkmark$$

✓

$$\underbrace{f(f(5))}_v + \underbrace{f(f(1))}_v =$$

$$v + v = 9 \checkmark$$

$$\textcircled{1} f(5) = 5 - \sqrt{9} = 2$$

$$\textcircled{2} f(2) = \frac{v}{2}$$

$$\textcircled{1} f(1) = 5$$

$$\textcircled{2} f(5) = 5 - \sqrt{9} = 5 - 3 = 2$$

✓

$$f(x-1) = a(x-1)^2 - b(x-1) + 2 \quad a(x^2 + 1 - 2x) - bx + b + 2$$

$$ax^2 + a - 2ax - bx + b + 2$$

$$f(x-1) - f(x) =$$

$$\cancel{ax^2} + a - 2ax - bx + b + 2 - \cancel{ax^2} - \cancel{bx} - \cancel{bx} - \cancel{bx} = -2ax + a + b$$

$$a - b = -3 - 5 = -8 \checkmark$$

$$9a + 2$$

$$-2a = 6$$

$$a = -3$$

$$a + b = 2$$

$$b = 5$$

✓

$$f(4) = 9 - 9 + 1 = 1$$

$$2f(4) = \frac{2}{2}$$

$$\frac{2+0}{1} = 2 \checkmark$$

② ✓

$$f(-1) = 1 + 3 + 1 = 5$$

$$f(2) = 5 - 5 + 1 = 1$$

$$f(2) = \frac{1}{2}$$

6

$$f(4) = 14 \rightarrow 2f(4) = 28$$

$$f(-2) = 5 \rightarrow -2f(-2) = -10$$

$$f(2) = 2$$

$$\frac{28-10}{2} = \frac{18}{2} = 9 \checkmark$$

② ✓

7

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

$$4-4=0 \checkmark$$

$$f(2) = 2 \rightarrow f(2) \rightarrow 4$$

② ✓

8

$$2^2 + 4 \cdot 2 + 9 = (2-2)^2 + 4(2-2) + 9 = 4 + 0 - 0 + 0 - 1 + 9 = 12$$

$$2^2 + 4 \cdot 2 + 0 = (2-2)^2 + 4(2-2) + 0 = 4 + 0 - 0 + 0 - 1 + 0 = 3$$

$$f(f(2-2)) = \frac{12}{3} = 4$$

$$f(2) = \frac{4+1+9}{4+1+0} = \frac{14}{5} \checkmark$$

② ✓

9

$$x + \frac{1}{x} = \frac{x^2+1}{x}$$

$$(f(\sqrt{x}))^2 = \frac{x^2+1+2x}{x^2} \checkmark$$

② ✓

$$\frac{x^2+2x^2+1}{x^2} = x^2 + \frac{1}{x^2}$$

$$\frac{x^2+2x^2+1-x^2}{x^2} = 2 \checkmark$$

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