

پاسخنامه

$$mf(n) > 0$$

$$\Rightarrow f(n) = -5, 2, 5$$

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

$$\begin{array}{cccc} -5 & 0 & 2 & 5 \\ -\cancel{5} + \cancel{5} & -\cancel{5} + \cancel{5} & -\cancel{5} + \cancel{5} & -\cancel{5} + \cancel{5} \end{array}$$

✓

$$\frac{-n}{f(n)} > 0$$

$$\Rightarrow f(n) = -3, 0, 2, 5$$

$$\begin{array}{cccc} -3 & 0 & 2 & 5 \\ -\cancel{3} + \cancel{3} & -\cancel{3} + \cancel{3} & -\cancel{3} + \cancel{3} & -\cancel{3} + \cancel{3} \end{array}$$

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

$$\Rightarrow \text{اعداد صحیح} = -3, -1, 1 \Rightarrow \boxed{\text{در مجموع ۳}}$$

✓

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

$$\Rightarrow f(-2) + 2f(2) = 14$$

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

$$\Rightarrow f(2) = -2$$

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

$$\Rightarrow f(-2) = 10$$

✓

$$f(5) = 5 - \sqrt{9} = 2 \quad f(2) = 4 + 3 = 7 \Rightarrow \boxed{7 + 2 = 9}$$

$$f(1) = 2 + 3 = 5 \quad f(5) = 5 - \sqrt{9} = 2$$

✓

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

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

$$= an^2 - 2an + a - bn + b + 2$$

$$f(n-1) - f(n) \Rightarrow (an^2 - 2an + a - bn + b + 2) - (an^2 - bn + 2)$$

$$= -2an + a + b$$

$$-2an + a + b = 4n + 2 \Rightarrow -2a = 4 \Rightarrow a = -2$$

✓

$$a + b = 2$$

$$-2 + b = 2$$

$$\Rightarrow b = 4$$

$$\Rightarrow a - b = -2 - 4 = -6$$

5

$$f(x) = x^2 - 9 + 1 = 1$$

$$f(-1) = (-1)^2 - 9 + 1 = 0$$

$$f(x) = x^2 - 9 + 1 = -1$$

$$\frac{(x+1) + (-1)}{1} = \boxed{V}$$

Ⓟ ✓

6

$$f(x) = 13$$

$$f(-x) = x$$

$$f(x) = V$$

$$\frac{(x \times 13) - (x \times x)}{V} = \boxed{\frac{x1}{V}}$$

Ⓟ ✓

7

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

$$f(x) = x \rightarrow f(x) = x$$

$$f(1) = x$$

$$\left. \begin{array}{l} f(x) = 1 \rightarrow f(1) = x \\ f(x) = x \rightarrow f(x) = x \\ f(1) = x \end{array} \right\} \Rightarrow \frac{x-x}{x-x} = \boxed{0}$$

Ⓟ ✓

8

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

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

$$\Rightarrow f(x) = \frac{x^2 + 1}{x^2 + 1} = \boxed{\frac{x1}{1x}}$$

Ⓟ ✓

9

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

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

$$\rightarrow (x + \frac{1}{x})^2 = x^2 + \frac{1}{x^2} + x + \frac{1}{x}$$

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

Ⓟ ✓

10