

$$y = \sqrt{x f(x)} \rightarrow x f(x) \geq 0 \rightarrow D_y = [-1, 0] \cup [2, 4]$$

	-1	-0.5	0	1	2	4
x	-	-	0	+	+	+
f(x)	+	0	-	-	0	+
	-	0	+	0	-	+

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

$$\frac{-x}{f(x)} \geq 0$$

$x > 0 \rightarrow$ مثبت
 $x < 0 \rightarrow$ منفی

	-1	-0.5	0	1	2	4
	-	+	0	-	+	0
	X	✓	✓	X		

$$D_y = (-1, 0) \cup (0, 2)$$

اعداد صحیح

$$f(x) - 2f(2) = x^2 - 2x + 2 \xrightarrow{x=2} f(2) - 2f(2) = 2$$

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

$$f(x) + 2 = x^2 - 2x + 2 \rightarrow f(x) = x^2 - 2x \xrightarrow{x=-2}$$

$$f(-2) = 4 + 4 = 8$$

$$f(f(1)) + f(f(2)) = f(1) + f(2) = 9$$

$$f(1) \rightarrow 2x + 2 \xrightarrow{x=1} 4 = f(1)$$

$$f(4) \rightarrow x - \sqrt{x+2} \xrightarrow{x=4} f(4) = 2$$

$$f(2) \rightarrow 2x + 2 \xrightarrow{x=2} f(2) = 6$$

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

$$f(x-1) - f(x) = (-2a)x + a + b = 2x + 2 \rightarrow \begin{cases} -2a = 2 \\ a = -1 \end{cases}$$

$$a + b = 2 \rightarrow -1 + b = 2 \rightarrow b = 3$$

$$a - b = -1 - 3 = -4$$

$$\frac{rf(r) + f(-1)}{f^r(r)} = \frac{r + 0}{(-1)^r} = \underline{V}$$

6

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

$$f(-1) = 1 + r + 1 = 0$$

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

$$\frac{rf(r) - rf(-r)}{f(r)} = \frac{(r \times -1 + r) - (r \times r)}{r} = \underline{\frac{r-1}{r}}$$

7

$$f(x) = r \times r + 1 = 13$$

$$f(-r) = (-r)^r = r$$

$$f(r) = r \times r + 1 = V$$

$$\frac{f(f(r)) - f(f(r))}{f(r) - r} = \frac{f(1) - f(r)}{r} = \underline{0}$$

8

$$f(f(\sqrt{r} - r)) = f(r) = \frac{r-1}{r}$$

$$x^r + rx + 0 = x^r + rx + r + 1 = (x+r)^r + 1$$

منقول

9

$$x^r + rx + 9 = x^r + rx + r + 0 = (x+r)^r + 0$$

صورت

$$f(\sqrt{r} - r) = \frac{(\sqrt{r} - r + r)^r + 0}{(\sqrt{r} - r + r)^r + 1} = \frac{1}{r} = r \quad f(r) = \frac{r^r + 0}{r^r + 1} = \underline{\frac{r-1}{r}}$$

$$(f(\sqrt{n}))^r - f(n) = n^r + \frac{1}{n^{r+1}} - n^r - \frac{1}{n^r} = \underline{\frac{1}{n^r}}$$

10

$$f(\sqrt{n}) = (\sqrt{n})^r + \frac{1}{(\sqrt{n})^r} = n + \frac{1}{n} \xrightarrow{\text{نحوه}} n^r + \frac{1}{n^r} + r$$

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