

$$y = \sqrt{x f(x)} \Rightarrow [-5, 0] \rightarrow x \leq 0 \text{ و } f(x) \leq 0$$

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

$f(x)$ (شماره ها) = -5, 2, 5

$$[2, 5] \rightarrow x \geq 0 \text{ و } f(x) \geq 0$$

$$\Rightarrow x f(x) \geq 0 \Rightarrow [-5, 0] \cup [2, 5]$$

$$y = \sqrt{\frac{-x}{f(x)}} \quad \text{شماره ها در مخرج} \rightarrow -3, 0 \text{ و } 2, 5$$

$$-3 < x < 0$$

$$0 < x < 2$$

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

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

$$f(x) \neq 0$$

اعداد صحیح $k = -2, -1, 0, 1, 2$ را در نظر بگیرید

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

$$f(-2) - 2f(2)$$

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

$$\textcircled{1} \rightarrow x=2$$

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

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

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

$$f(-2) + 4 = 12$$

$$f(2) = -2$$

$$f(-2) = 10$$

$$f(f(5)) + f(f(1))$$

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

$$5 - \sqrt{9} = 2 \Rightarrow 2 = 2$$

$$f(5) = 2$$

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

$$\Rightarrow 6 + 2 = 8$$

$$f(x) = ax^2 - bx + 2 \rightarrow f'(x-1) - f(x) = 9x + 1$$

$$a-b=?$$

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

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

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

$$= -2ax + a + b = 9x + 1$$

$$\Rightarrow a-b$$

$$-2ax = 9x \Rightarrow a = -\frac{9}{2}$$

$$a+b=2$$

$$-\frac{9}{2}+b=2$$

$$b=\frac{13}{2}$$

$$-2-a=-1 \Rightarrow a=-1$$

$$f(x) = x^r - r_{n+1}$$

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

6

$$\frac{f(r) - f(-r)}{f(r)}$$

$$\frac{r_{n+1}}{r^r} \approx \frac{r}{r}$$

7

$$\frac{r-1}{r} = \underline{\frac{r-1}{r}}$$

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

8

$$x^r + rx + 1 = (x+r)^r + 1 = (\sqrt{r})^r + 1 = r+1 = \underline{r}$$

$$x^r + rx + 1 = (x+r)^r + 1 \Rightarrow r+1 = \underline{r}$$

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

$$\begin{aligned} x &= \sqrt{r}-r \\ x+r &= \sqrt{r} \end{aligned}$$

9

$$f(r) = \frac{r^r + f(r) + 1}{r^r + f(r) + 1} \Rightarrow \frac{r+1+1}{r+1+1} = \underline{\frac{r+2}{r+2}}$$

$$(f(\sqrt{r}))^r - f(r)$$

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

$$(r + \frac{1}{r})^r = r^r + \frac{1}{r^r} + r \Rightarrow r^r + r + \frac{1}{r^r} - (r^r + \frac{1}{r^r}) = \underline{r}$$

10