

پاسفنامہ کی تشریحی تالیف شاہ (۷) نکلس اشاری

11

$$y = \sqrt{u f(u)} \Rightarrow u f(u) \geq 0 \Rightarrow u = -\omega, u = r, u = d \Rightarrow [-\omega, r]$$

ناترین  $f(x) \leq 0 \Rightarrow f(x) \geq 0 \Rightarrow [2, 5]$

$$u \neq (u) \stackrel{d' = 0}{\geq} 0 \Rightarrow u < 0 \Rightarrow f(u) \stackrel{f' = 1}{<} 0 \Rightarrow [-\omega, 0]$$

$$u=0 \checkmark \Leftrightarrow [r, \omega] \stackrel{\text{محدود}}{\Leftrightarrow} \begin{cases} u > 0 \\ f(u) > 0 \end{cases}$$

$$Dy = [-\omega, 0] \cup [r, \omega]$$

21

$$y = \sqrt{\frac{-n}{f(n)}} \quad \frac{-n}{f(n)} \geq 0 \quad f(n) \neq 0 \quad \xrightarrow{\text{معمولاً باشد از روی نمودار}} \underline{n = -3, 0, 2}$$

$$D_y = (-390) \cup (0, 2) \xrightarrow{\text{مجموعه}}$$

۳۳ عدد صحیح  $-20$  تا  $19$  :  $f(x) < 0$  و  $g(x) > 0$

$$\cancel{\frac{1}{x}} + \cancel{\frac{1}{x}} - \cancel{\frac{1}{x}} - \cancel{\frac{1}{x}} + \cancel{\frac{1}{x}}$$

حالت دوم :  $f(x) > 0$  ,  $x < 0$

- ۳۳

$$f(u) - v f(v) = u^v - vu + f$$

$$f(-r) = 8$$

$$f(r) - r f(r) = r^2 - \psi(r) + \varepsilon \Rightarrow f(r) = \varepsilon - \frac{r^2}{4} + \varepsilon \Rightarrow f(r) = r$$

$$f(-r) - r f(r) = (-r)^r - r(-r) + r \Rightarrow f(-r) - r f(r) = r + r + r$$

$$f(-r) + f = 1 \varepsilon$$

$$p(-r) = 1.$$

② ✓

$$f(x) = \begin{cases} x - \sqrt{x+9} & x > 9 \\ 2x+3 & x \leq 9 \end{cases}$$

$f(1) \Rightarrow 5$        $f(9) = 9 - \sqrt{9+9} = 9 - 3 = 6$

- 3

$$f(x) = ax^p - bx + r$$

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

$$f(n-1) - an^r + bn - r = 9n + r \quad (5) \text{ Also}$$

$$f(n-1) = an^4 - bn + cn + f$$

$$a - b = 8$$

Ende

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

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

$$\begin{aligned} -\cancel{r}a + \cancel{a} + b &= \cancel{5}n + \cancel{r} \Rightarrow a = -r, a+b=r \\ -r+b &= r \Rightarrow b=d \quad a-b = -r-d = -n \end{aligned}$$

$$f(x) = x^2 - 3x + 1$$

$$f(3) = \frac{3^2}{2} - \frac{3(3)}{-9} + 1 = 1$$

-4

$$3f(3) + f(1)$$

$$f(-1) = \frac{(-1)^2}{2} - \frac{3(-1)}{-9} + 1 = 2$$

$$f^2(3)$$

$$f(3) = \frac{3^2}{2} - \frac{3(3)}{-9} + 1 = -1$$

$$\frac{f(1) + 2}{(-1)^2} = \frac{3 + 2}{1} = \frac{5}{1} = 5$$

✓

-5

$$f(x) = \begin{cases} x^2 + 1 & x \geq 3 \\ x^2 & x < 3 \end{cases}$$

$$\frac{3f(3) - 3f(-3)}{f(3)}$$

$$f(3) \Rightarrow 13$$

$$f(-3) \Rightarrow 9$$

$$f(3) \Rightarrow 13$$

$$\frac{3(13) - 3(9)}{13} = \frac{24 - 27}{13} = -\frac{3}{13}$$

✓

-6

$$f = \{(3, 4), (3, 2), (3, 1), (1, 3)\}$$

$$\frac{f(f(3)) - f(f(3))}{f(1) - 3} = \frac{4 - 4}{1 - 3} = \frac{0}{-2} = 0$$

✓

-7

$$f(x) = \frac{x^2 + 3x + 9}{x^2 + 3x + 4} = \frac{(x+3)^2 + 0}{(x+3)^2 + 1}$$

$$f\left(\frac{1}{\sqrt{3}-3}\right) = \frac{(\sqrt{3}-3)^2 + 0}{(\sqrt{3}-3)^2 + 1} = \frac{3+4}{3+1} = \frac{7}{4}$$

$$f(3) = \frac{(3+3)^2 + 0}{(3+3)^2 + 1} = \frac{36}{37}$$

-8

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

✓

$$(f(\sqrt{x}))^2 - f(x) = (\sqrt{x})^2 + \frac{1}{(\sqrt{x})^2} - \left(x + \frac{1}{x}\right) = x + \frac{1}{x} - x - \frac{1}{x} = 0$$

$$f(x) = x^2 + \frac{1}{x^2} \Rightarrow x^2 + \frac{1}{x^2} + x - x^2 - \frac{1}{x^2} = 0$$