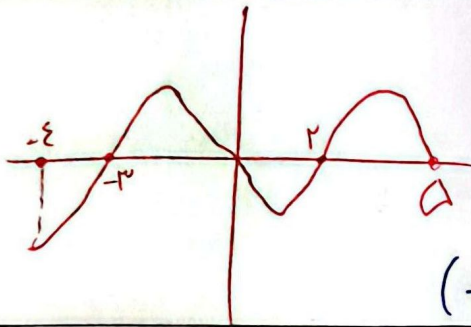


$$y = \sqrt{a f(x)}$$

$$D_f = [-a, 0] \cup [r, a]$$

۱



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

$$D_f = (-3, 0) \cup (0, r)$$

شامل ۳ عدد صحیح است $(-2, -1, 1)$

۲

اگر $f_{(-r)} - f_{(r)} = a^2 - 3a + 4$ باشد $f_{(-r)}$ ؟

$$f(a) = (a-r)^2 + a + 2f_{(r)}$$

$$f(r) = r + 2f_{(r)} \Rightarrow f_{(r)} = -r$$

$$\Rightarrow f_{(-r)} = (-r-r)^2 - r - 4 \Rightarrow f_{(-r)} = 10$$

۳

$$f(f(a)) + f(f(1))$$

$$f(a - \sqrt{a+4}) + f(2 \times 1 + 3) = f_{(r)} + f_{(a)}$$

$$a - \sqrt{a+4} + 2 \times 2 + 3 = 2 + 7 = 9$$

$$f_{(a)} = \begin{cases} a - \sqrt{a+4} & : a > 3 \\ 2a + 3 & : a \leq 3 \end{cases}$$

۴

تساوی $f_{(a-1)} - f_{(a)} = 9a + 2$ را برای همه مقادیر a برقرار است

$$a(a-1)^2 - b(a-1) + 2 - a a^2 + b a - 2 = 9a + 2 \quad ? a-b$$

$$a a^2 + a - 2 a a - b a + b + 2 - a a^2 + b a - 2 = 9a + 2$$

$$-2 a a + a + b = 9a + 2 \Rightarrow \begin{cases} -2a = 9 \Rightarrow a = -\frac{9}{2} \\ a + b = 2 \Rightarrow b = 2 - a = -\frac{9}{2} - \frac{9}{2} = -9 \end{cases}$$

۵

$$f_{(n)} = \frac{(n+2)^r + 1}{(n+2)^r + 3} = \frac{(\sqrt{3}-2+2)^r + 1}{(\sqrt{3}-2+2)^r + 3} = \frac{3+1}{3+3} = \frac{4}{6} = \frac{2}{3}$$

ب) $f_{(n)} = \frac{n^r + \varepsilon n + \delta}{n^r + \varepsilon n + \nu}$

$$\frac{n^{\varepsilon} + 1}{n^r} = n^r + \frac{1}{n^r}$$

ب) $f_{(-3)} \Rightarrow f_{(n-\frac{1}{n})} = \frac{n^{\varepsilon} + 1}{n^r}$

$$\left(n - \frac{1}{n}\right)^r = n^r + \frac{1}{n^r} - \frac{2}{n^2} \Rightarrow f_{(n-\frac{1}{n})} = \left(n - \frac{1}{n}\right)^r + 2$$

$$\Rightarrow f_{(n)} = n^r + 2 \Rightarrow f_{(-3)} = 9 + 2 = 11$$

ب) حاصل متبادلة: $g_{(n)} = \sqrt{9-n^2}$ و $f_{(n)} = \{(2,0), (1,-\varepsilon), (0,2), (1,1)\}$
 $g_{(n)} = (0,3), (1,\sqrt{8}), (2,\sqrt{5}), (3,0)$

ا) $\frac{f}{g} = \{(0, \frac{2}{3}), (1, \frac{-\varepsilon}{\sqrt{8}}), (2, 0)\}$

ب) $\frac{g}{f} = \{(0, \frac{3}{2}), (1, \frac{\sqrt{8}}{-\varepsilon})\}$

ا) $2f_{(n)} = \{(2,2), (3,8), (-5,8), (1,-\varepsilon)\}$ ب) $f_{(n)+1} = \{(2,2), (3,5), (-5,5), (1,-1)\}$

ج) $3f_{(n)} + 1 = \{(2,7), (3,14), (-5,14), (1,14)\}$ د) $f_{(n)} = \{(1,1), (\frac{3}{2}, 4), (\frac{-5}{2}, 2), (\frac{1}{2}, -2)\}$

$f_{(n)} = \{(2,5), (1,2), (1,\varepsilon), (3,1), (4,2)\}$ $g_{(n)} = \{(1,0), (2,1), (-1,8), (-2,9), (3,-1)\}$

ا) $f-g = \{(1,4), (2,2), (3,2)\}$

ب) $\frac{2f}{g} = \{(2,4), (3,-2)\}$