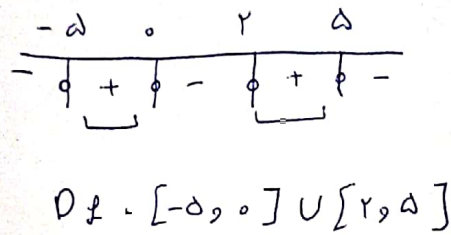


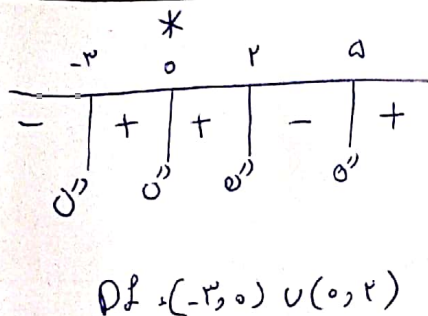
نوعار: $y = f(x)$
دامنه: $P = y = \sqrt{x f(x)}$
 $x f(x) \geq 0$
 $\downarrow$
 $-5 \quad 2 \quad 5$

۱



$y = \sqrt{\frac{-x}{f(x)}}$ دامنه
 $\frac{-x}{f(x)} \geq 0$
 $\rightarrow x \neq 0 \neq 5, 2, -3, 0$

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$f(x) - 2f(2) = x^2 - 3x + 4$
 $P = f(-2)$
 $x = 2 \rightarrow f(2) = 4 - 6 + 4 = 2 \Rightarrow f(2) = 2$
 $x = -2 \rightarrow f(-2) = 4 + 6 + 4 = 10$
 $f(-2) + 4 = 10 + 4 = 14$

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$f(f(5)) + f(f(1))$
 $\downarrow$
 $\frac{5 - \sqrt{9}}{0 - 3 + 2} = \frac{5 - 3}{-1} = -2$
 $f(5) = -2$
 $f(1) = \frac{1 \times 1 + 1}{0} = \frac{2}{0}$
 $f(1) = 2$
 $f(2) = 7$
 $V + 2 = 9$

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$a(x-1)^2 - b(x-1) + 2 - (ax^2 - bx + 2) = ax^2 + a - 2ax - bx + b + 2 - ax^2 - bx - 2 =$
 $a + b - 2ax = 4x + 2 \Rightarrow -2ax = 4x + 2 \Rightarrow a = -3 \rightarrow a + b = 2 \Rightarrow b = 5$
 $a - b = -3 - 5 = -8$

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$$P = f(\sqrt{x-2})$$

$$\frac{x^2 + 2x + 5}{x^2 + 2x + 5} \cdot L(x)$$

$$\frac{(\sqrt{x-2})^2 + f(\sqrt{x-2}) + 5}{(\sqrt{x-2})^2 + f(\sqrt{x-2}) + 5} \Rightarrow \frac{x+2 - f\sqrt{x-2} + f\sqrt{x-2} - 1 + 5}{x+2 - f\sqrt{x-2} + f\sqrt{x-2} - 1 + 5} = \frac{x}{x} = \frac{x}{x}$$

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$$-3 = f(x) \sqrt{x}$$

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

$$\xrightarrow{\text{نقل}} x^2 + \frac{1}{x^2} \Rightarrow (x - \frac{1}{x})^2 + 2 \Rightarrow (-3)^2 + 2 = 11$$

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$$\text{الف) } x \neq f(x) \rightarrow \{(2, 2), (3, 1), (-1, 4), (1, -4)\}$$

$$\text{ب) } f(x) + 1 \rightarrow \{(2, 2), (3, 2), (-1, 3), (1, -1)\}$$

$$\text{ج) } x f'(x) + 1 \rightarrow \{(2, 4), (3, 4), (-1, 3), (1, 13)\}$$

$$\text{د) } f(2x) \rightarrow \{(1, 1), (\frac{3}{2}, 4), (\frac{-1}{2}, 2), (\frac{1}{2}, -2)\}$$

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$$f(x) \{ (2, 0), (1, -4), (0, 2), (7, 1) \} \quad g(x) = \sqrt{9 - x^2}$$

$$\text{الف) } \frac{f}{g} \Rightarrow \{(2, \frac{2}{\sqrt{9}}), (0, \frac{0}{\sqrt{9}})\} \Rightarrow \{(2, \frac{2}{3}), (0, 0)\}$$

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$$\text{ب) } \frac{g}{f} = \{(2, \frac{3}{2}), (0, \frac{0}{2})\} \Rightarrow \{(2, \frac{3}{2})\}$$

$$\text{الف) } f - g \Rightarrow \{(1, 4), (2, 2), (3, 2)\}$$

$$\text{ب) } \frac{f}{g} = \{(1, \frac{1}{0}), (2, 4), (3, -2)\} \Rightarrow \{(2, 4), (3, -2)\}$$

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