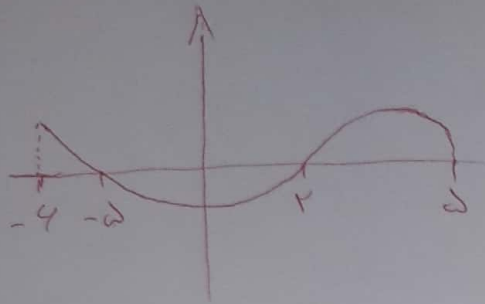


الم. A دران

مردی جان نشانی | تلف شماره ۱۵۸۰۰



	-4	-2	0	2	4
$f(x)$	+	-	-	+	+
x	-	-	+	+	+
p	-	+	-	+	+

۵

$$Df = [-2, 0] \cup [2, 4]$$

$$y = \sqrt{\frac{-x}{f(x)}} \rightarrow \frac{-x}{f(x)} \geq 0$$

$$f(x) \neq 0$$

$$Df = (-2, 0) \cup (0, 2)$$

$$-2, -1, 1 \leftarrow \text{مقادیر}$$

۵

	-4	-2	0	2	4
$-x$	+	+	-	-	-
$f(x)$	-	+	-	+	+
p	-	+	+	+	-

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

$$-2^2 - 2(-2) + 2 = 4 + 4 + 2 = 10$$

$$10 - 4 = 6$$

$$x^2 - 4 + 2 = 2 \quad 2f(2) = 4$$

۵

$$f(x) = \begin{cases} x - \sqrt{x+4} & ; x > 2 \\ 2x + 2 & ; x \leq 2 \end{cases}$$

$$1 - \sqrt{1+4} = 1 - \sqrt{5}$$

$$2x + 2 = 4$$

۵

$$f(f(4)) + f(f(1)) \rightarrow f(f(4)) = f(2) = 6$$

$$f(f(1)) = f(4) = 2 \rightarrow f(f(4)) + f(f(1)) = 6 + 2 = 8$$

$$f(x) = ax^2 - bx + c$$

۰.۷

$$f(x-1) - f(x) = 4x + 2 \xrightarrow{\text{با هر مقداری درست است}} \quad \text{و} \quad x \rightarrow 1$$

فرض کنیم:

$$\rightarrow f(1-1) - f(1) = 4 \cdot 1 + 2 \quad f(0) - f(1) = 1 \quad \cancel{f(1) = 1}$$

۲ -

$$\cancel{f(1) = a - b + c} \rightarrow \cancel{f(1) = 1} \rightarrow \cancel{a - b + c = 1} \rightarrow \cancel{a - b = 1 - c}$$

$$c - f(1) = 1 \quad \cancel{1 - a - b + c = 1} \rightarrow \cancel{c - a - b + c = 1} \rightarrow \cancel{a + b + c = 1}$$

$$a - b - c = -1 \quad \cancel{a - b - c}$$

۰.۲ و

۰.۴

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

۵

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

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

۰.۷

$$f(x-2) = 0 \Rightarrow f(\frac{1}{x}) = \frac{1}{9}$$

$$x - \frac{1}{x} = -2 \quad x = \frac{x^2 + 1}{x^2} \rightarrow \frac{x^2 + 1}{x^2} + \frac{1}{x^2} \rightarrow x^2 + \frac{1}{x^2} =$$

$$f(-2) = x^2 + \frac{1}{x^2} = 9 + \frac{1}{9} = \frac{82}{9}$$

۵

۸.

$$f(x) = \{(2,0), (1,-4), (0,2), (7,1)\}$$

$$g(x) = \sqrt{9-x^2} \rightarrow 9-x^2 \geq 0 \quad x^2 \leq 9 \quad x \leq 3 \quad x \geq -3$$

۱/۵

الف) $\frac{f}{g} = \{(2, \frac{0}{\sqrt{9}}), (1, \frac{-4}{\sqrt{8}}), (0, \frac{2}{3})\}$

ب) $\frac{g}{f} = \{(\cancel{0, \frac{2}{3}}), (1, \frac{\sqrt{8}}{-4})\}$ $\neq$ نمی تواند باشد بنابراین $(2, \frac{9}{\sqrt{5}})$ اندازیم.

۹.

$$f(x) = \{(2,1), (3,4), (-5,2), (1,-2)\}$$

۱/۵

الف) $2f(x) = \{(2, \cancel{2}), (\cancel{3}, 8), (-5, \cancel{4}), (1, \check{-4})\}$

ب) $f(x)+1 = \{(2, \check{2}), (\check{3}, 5), (-5, \check{3}), (1, \check{-1})\}$

ج) $2f^2(x)+1 = \{(2, \check{4}), (\check{3}, 49), (-5, \check{13}), (1, \check{13})\}$

د) $f(2x) = \{(\cancel{4}, 1), (\cancel{6}, 4), (\cancel{-10}, 2), (2, -2)\}$

$$f(x) = \{(2,2), (7,2), (1,4), (3,1), (5,2)\}$$

۱۰. ۱

$$g(x) = \{(1,0), (2,1), (-1,4), (-2,-3), (3,-1)\}$$

الف) $f-g = \{(\cancel{2,2}), (\cancel{7,2}), (\cancel{1,4}), (\cancel{5,2})\}$

ب) $\frac{2f}{g} = \{(2, \check{4}), (3, \check{-2})\}$ g را از ای به باعث تعریف شدن عبارت می شود بنابراین $(1, \frac{1}{9})$ اندازیم.