

نام و نام خانوادگی (درجای خود بنویسید) پاسخنامه تشریحی تکلیف شماره ۷ کلاس دهم ریاضی c

$$\sqrt{x f(x)} \rightarrow x f(x) \geq 0$$

	-4	-5	0	1	5
x	$\ominus$	$-$	0	$+$	$+$
$f(x)$	$\oplus$	$+$	$-$	$-$	$+$
ρ	$\ominus$	$-$	$+$	$-$	$+$

$$\rightarrow \text{دامنه تابع} = [-5, 0] \cup [1, 5]$$

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

	-4	-3	0	1	5
$-x$	$\oplus$	$+$	$+$	$-$	$-$
$f(x)$	$\oplus$	$-$	$+$	$-$	$+$
ρ	$\ominus$	$-$	$+$	$+$	$-$

$$\rightarrow \text{دامنه تابع} = (-3, 1) \cup \{0\} \rightarrow \text{شامل ۳ عدد صحیح}$$

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$$x=1 \rightarrow f(1) - 1f(1) = 1 - 4 + 1 = -2$$

$$f(1) = -2$$

$$x=-1 \rightarrow f(-1) - 1f(-1) = 1 + 4 + 1 = 6$$

$$f(-1) = 6 - 1 = 5$$

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$$\begin{cases} f(1) \rightarrow 1 + 1^3 = 2 \\ f(5) \rightarrow 5 - \sqrt{5 + 4} = 1 \end{cases} \rightarrow \begin{cases} v + 1^3 = 2 \\ v + 1^3 = 9 \end{cases}$$

$$\left. \begin{array}{l} f(1) \rightarrow 1 + 1^3 = 2 \\ f(5) \rightarrow 5 - \sqrt{5 + 4} = 1 \end{array} \right\} \rightarrow v + 1^3 = 9$$

$$f(1) \rightarrow 1 + 1^3 = 2$$

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$$f(x) = ax^2 - bx + 1$$

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

$$= ax^2 + a - 2ax - b + b + 1 - ax^2 + bx - 1 \Rightarrow \underbrace{-2a}_{-4}x + \underbrace{a+b}_{1} = 4x + 1$$

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$$\rightarrow \begin{aligned} -2a &= 4 \Rightarrow a = -2 \\ a + b &= 1 \Rightarrow b = 3 \end{aligned}$$

$$\rightarrow a - b = -2 - 3 = -5$$

$$f(\sqrt{13}-2) = \frac{(\sqrt{13}-2)^4 + 4(\sqrt{13}-2) + 6}{(\sqrt{13}-2)^4 + 4(\sqrt{13}-2) + 7} = \frac{13 - 8\sqrt{13} + 4 + 4\sqrt{13} - 8 + 6}{13 - 8\sqrt{13} + 4 + 4\sqrt{13} - 8 + 7} = \frac{13}{14} = \frac{1}{14}$$

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$$f\left(x - \frac{1}{x}\right) = \frac{x^4}{x^4} + \frac{1}{x^4} \rightarrow \left(x - \frac{1}{x}\right)^4 + 1 \rightarrow f(x) = x^4 + 1$$

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$$f(-13) = (-13)^4 + 1 = 11$$

$$D_f = \{0, 1, 2, 4\}$$

$$D_g \Rightarrow \begin{cases} 9 - x^4 \geq 0 \\ 9 \geq x^4 \end{cases}$$

$$13 \geq x \geq -13 \rightarrow D_g = [-13, 13]$$

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$$\text{الف) } D_f \cap D_g - \{x | g(x) = 0\} = \frac{f}{g}$$

$$\rightarrow \frac{f}{g} = \{0, 1, 2\} - \{13, -13\} = \{0, 1, 2\}$$

$$\rightarrow \left\{ (1, 0), \left(1, \frac{1}{13}\right), \left(0, \frac{1}{13}\right) \right\}$$

$$\text{ب) } \frac{g}{f} = D_g \cap D_f - \{x | f(x) = 0\}$$

$$\rightarrow \frac{g}{f} = \{0, 1, 2\} - \{2\} = \{0, 1\}$$

$$\rightarrow \left\{ \left(1, \frac{\sqrt{13}}{-1}\right), \left(0, \frac{1}{13}\right) \right\}$$

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$$\text{الف) } 12f(x) = \{(1, 1), (13, 1), (-13, 1), (1, -1)\}$$

$$\text{ب) } f(x) + 1 = \{(1, 1), (13, 6), (-13, 6), (1, -1)\}$$

$$\text{ج) } 12f^2(x) + 1 = \{(1, 4), (13, 49), (-13, 49), (1, 13)\}$$

$$\text{د) } f(12x) = \left\{ \left(1, \frac{1}{12}\right), \left(\frac{13}{12}, \frac{1}{12}\right), \left(\frac{-13}{12}, \frac{1}{12}\right), \left(\frac{1}{12}, -\frac{1}{12}\right) \right\}$$

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$$D_f = \{1, 4, 13, 6\} \quad D_g = \{1, 2, -1, -2, 13\}$$

$$f - g = D_f \cap D_g = \{(1, 4), (1, 2), (13, 2)\}$$

$$\frac{12f}{g} = \left\{ \left(1, \frac{4}{2}\right), (1, 4), (13, -2) \right\}$$

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