نام و نام خانوادگی ...امیر مهدی مزروعی... پاسخنامه تشریحی تکلیف شماره ...۳... کلاس ...یازدهم تجربی B...

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

ریشه ۰

$\sqrt{\left(\left(\frac{1}{2}\right)^{x-1} - 1\right)\left(x^3\right)} \Rightarrow \left(\left(\frac{1}{2}\right)^{x-1} - 1\right) x^3 \geq 0 \qquad D_y = [0,1]$

ریشه ۱

$\begin{array}{ccccc} & 0 & & 1 & \\ - & \phi & + & \phi & - \end{array}$

۲

$f(x) = \begin{cases} \sqrt{2x-2} ; & x \geq 0 \\ \cancel{\sqrt{-2} ; \ x < 0} \end{cases} \Rightarrow f(-x) = \begin{cases} 2-2x : & -x \geq 0 \\ \cancel{\sqrt{-2} : \ -x < 0} \end{cases}$

$\Rightarrow f(-x) = \sqrt{2-2x} ; \quad x \leq 0 \Rightarrow D_{f(-x)} = (-\infty, 0]$

$2-2x = 0 \Rightarrow x = 1$

$\begin{array}{ccc} & 1 & \\ + & \phi & - \end{array} \qquad (x \leq 0) \cap (x \leq 1) = \boxed{x \leq 0}$

۳

$\sqrt{\frac{x-1}{f(x)}} \Rightarrow \frac{x-1}{f(x)} \geq 0$

$x - 1 = 0 \Rightarrow x = 1$

$f(x) = 0 \Rightarrow x = 3, 2, -4$

$D_f = [-5, 3]$

$\begin{array}{ccccccccc} & -4 & & 1 & & 2 & & 3 & \\ - & & + & \phi & - & & + & & \end{array}$

$\Rightarrow \boxed{D_y = (-4, 1] \cup (2, 3)}$ جواب

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$f(x) = 9x^4 - 7x^2 - 4x - 3 = 9x^4 - 6x^2 + 1 + (-x^2 - 4x - 4)$

$(3x^2 - 1)^2 - (x+2)^2 \Rightarrow (3x^2 + x + 1)(3x^2 - x - 3)$

$\Delta < 0$ ریشه ندارد $\qquad \Delta > 0$ دارای ۲ ریشه

$D_{\frac{1}{f(x)}} = \mathbb{R} - \{\alpha, \beta\} \Rightarrow \boxed{a = -1, b = -3}$

$\sqrt{-(-1-3)} = \boxed{2}$ جواب

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$y = \sqrt{x^3 - \frac{64}{x^3} + x - \frac{4}{x}} \Rightarrow y = \sqrt{\left(x - \frac{4}{x}\right)\left(x^2 + 4 + \frac{16}{x^2}\right) + \left(x - \frac{4}{x}\right)}$

$y = \sqrt{\left(x - \frac{4}{x}\right)\left(x^2 + 4 + \frac{16}{x^2} + 1\right)}$

$\Delta < 0$ همیشه مثبت $a > 0$

$-2, 2$ ریشه

۰ تعریف نشده

$\begin{array}{ccccccc} & -2 & & 0 & & 2 & \\ + & \phi & - & & - & \phi & + \end{array}$

$\Rightarrow D_y = \mathbb{R} - (-2, 2)$

$f_{(x^3+x)} = 2x^2 - 1$

$f_{(2)} \Rightarrow x^3 + x = 2 \Rightarrow \boxed{x = 1} \rightarrow 2x^2 - 1 = 1$

$\text{if } x = 1 \Rightarrow x^3 + x = 2 \Rightarrow \boxed{1+1=2} \quad \Rightarrow \quad 1 + 7 = f_{(2)} + f_{(10)} = 8$ 6

$\text{if } x = 2 \Rightarrow x^3 + x = 8 + 2 = 10$ $\quad 8$

$f_{(10)} \Rightarrow x^3 + x = 10 \Rightarrow \boxed{x = 2} \rightarrow 2x^2 - 1 = 7$

$f(x) = (x-2)^3 + 8$

$g(x) = (x+3)^3 - 27$

$\Rightarrow \dfrac{g(x)}{f(x)} = \dfrac{(x+3)^3 - 27}{(x-2)^3 + 8} = \dfrac{g(\sqrt[3]{7} - 3)}{f(\sqrt[3]{2} + 2)} = \dfrac{(\sqrt[3]{7})^3 - 27}{(\sqrt[3]{2})^3 + 8}$ 7

$\boxed{= -2}$

$f(x) = \sqrt{x + 4\sqrt{x-4} + 4 - 4} = \left|\sqrt{x-4} + 2\right|$ تعریف نشده

$g(x) = \sqrt{x - 4\sqrt{x-4} + 4 - 4} = \left|\sqrt{x-4} - 2\right|$

$\Rightarrow f(x) + g(x) = \begin{cases} 2\sqrt{x-4} & : x \geq 8 \\ 4 & : 4 \leq x < 8 \end{cases} \Rightarrow a = 0,\ b = 2,\ c = -4 \Rightarrow \dfrac{a+b}{c} = -\dfrac{1}{2}$ 8

$\hookrightarrow a = 4,\ b = 0,\ c = 0 \Rightarrow \dfrac{a+b}{c}$

$\dfrac{g}{f}(x) \qquad D_g = \{1, 3, 0, 2\}$

$f \neq 0 \Rightarrow x \neq 3,\ 1 \quad x \neq -2 \qquad D_f = \mathbb{R} - \{1, 3\} \qquad D_g \cap D_f = \{0, 2\}$ 9

$x^2 - 4x + 3 = 0 \qquad \dfrac{g}{f} = \{(0, 6), (2, -\tfrac{1}{4})\}$

$\Rightarrow x = \dfrac{4 \pm 2}{2} = 3,\ 1$

$f_{(2x)} = \{(0.5, 2), (1.5, -1), (2, 2), (-0.5, 6)\}$

$f_{(x^2)} = \{(1, 2), (-1, 2), (\sqrt{3}, -1), (-\sqrt{3}, -1), (2, 2), (-2, 2)\}$ 10

$2g^2(x) + 1 = \{(-2, 19), (1, 3), (3, 9), (-1, 1)\}$

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