

$$f(x) + f(1) = ?$$

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$$f(x^2 + 2) = 7x^2 - 1$$

$$\rightarrow x^2 + 2 = 7 \rightarrow x^2 + 2 - 7 = 0 \rightarrow (x^2 - 5) = 0 \rightarrow x = \pm \sqrt{5}$$

$$\rightarrow x^2 + 2 = 1 \rightarrow x^2 + 2 - 1 = 0 \rightarrow (x^2 - 1) = 0 \rightarrow x = \pm 1$$

$$\xrightarrow{x=1} f(1) = 1 \quad \xrightarrow{x=\sqrt{5}} f(1) = 7 \rightarrow f(x) + f(1) = 8 \quad \checkmark$$

$$f(x) = \sqrt{x+1} \sqrt{x-1} = |\sqrt{x-1} + 1| = \sqrt{x-1} + 1$$

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$$g(x) = \sqrt{x-1} \sqrt{x+1} = |\sqrt{x-1} - 1|$$

$$f(x) + g(x) = \sqrt{x-1} + 1 + 1 - \sqrt{x-1} = 2 \quad \checkmark$$

$$f(x) + g(x) = \sqrt{x-1} + 1 + \sqrt{x-1} - 1 = 2\sqrt{x-1}$$

$$f(x) = x^5 - 9x^3 + 12x = (x-2)^5 + 1$$

ترتیب سوالات را عوض است
باش

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$$g(x) = x^5 + 9x^3 + 27x = (x+3)^5 - 27$$

$$\frac{g(\sqrt{5}-2)}{f(\sqrt{5}+2)} = \frac{(\sqrt{5}-2+2)^5 - 27}{(\sqrt{5}+2-2)^5 + 1} = \frac{-27}{1} = -27 \quad \checkmark$$

$$f(x) = \frac{x+2}{x^2-4x+3}$$

$$g(x) = \{(2,1), (1,0), (3,5), (0,4)\}$$

$$\begin{cases} f(x) = -x \\ f(0) = \frac{2}{3} \end{cases}$$

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$$\frac{g}{f} = \{(2, -\frac{1}{2}), (0, 4)\} \quad \checkmark$$

$$D_{\frac{g}{f}} = D_g \cap D_f = \{x | f(x) \neq 0\} = \{2, 0\}$$

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

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

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

$$\text{ب) } f(g(x)) = \{(1,2), (-1,2), (\sqrt{3}, -1), (-\sqrt{3}, -1)\}$$

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

$$\text{د) } \frac{f}{g} = \{(1,-2), (3,-1)\} \quad \checkmark$$

وقت

برای بدوین اسم صفر کا فا میس

نام و نام خانوادگی پاسخنامه تشریحی تکلیف شماره کلاس

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

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

$$\begin{array}{c} 0 \\ -1 \end{array} \begin{array}{c} 1 \\ +1 \end{array} \rightarrow D_f = [0, 1] \checkmark$$

$$f(x) = \sqrt{x + |x+2|} \rightarrow f(-x) = \sqrt{-x + |-x+2|} \rightarrow \sqrt{-x + |x-2|}$$

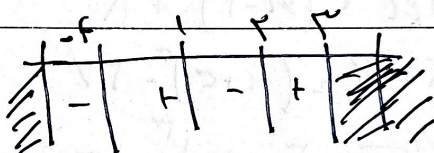
$$\rightarrow -x + |x-2| \geq 0 \rightarrow -2 \geq 0 \wedge \Rightarrow x \leq 2 \checkmark \text{ II}$$

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$$-2x + 2 \geq 0 \rightarrow x \leq 1 \text{ I} \rightarrow x \leq 1$$

$$D_f = (-\infty, 1] \checkmark$$

$$y = \sqrt{\frac{x-1}{f(x)}} \rightarrow 1$$



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$$\rightarrow D_f = (-1, 1] \cup (2, 3) \checkmark$$

$$y_1 = \frac{1}{9x^2 - 10x^2 \cdot f(x) - 3}$$

$$y_2 = \frac{1}{3x^2 + ax + b}$$

$$\Rightarrow D_1 \cap D_2 \rightarrow 9x^2 - 10x^2 \cdot f(x) - 3 = (3x^2 + ax + b)(3x^2 + cx + d)$$

$$9x^2 + 3(a+c)x^2 + (ac+3b+3d)x^2 + (ad+bc)x \rightarrow a+c=0 \rightarrow a=-c$$

$$\sqrt{-\sqrt{a+b}} = \sqrt{f} = 2 \checkmark$$

$$\rightarrow ac+3b+3d=0 \rightarrow |f_c| \rightarrow a_2=1$$

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$$y = \sqrt{f(x) - f\left(\frac{1}{x}\right)} = \sqrt{x^2 + a \cdot \frac{1}{x} - \frac{1}{x}} \Rightarrow \sqrt{\frac{x^2 + a^2 - fa^2 - 1}{x^2}} < 2$$

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

$$x^2 + a^2 - fa^2 - 1$$

$$\left. \begin{array}{l} x_2=2 \rightarrow y_2=0 \\ x_2=-2 \rightarrow y_2=0 \end{array} \right\} \Rightarrow x^2 + a^2 - fa^2 - 1 < 2$$



$$\rightarrow D_f = [-2, 0) \cup [2, +\infty) \checkmark$$

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برای بدوین اسم صفر کا فا میس