یازدهم B

تکلیف ۵

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$f(x)=(\frac{1}{2})^{x-2}-1 \qquad y=\sqrt{x^3 f(x+1)}$

$f(x+1)=(\frac{1}{2})^{(x+1)-2}-1=(\frac{1}{2})^{x-1}-1 \qquad y=\sqrt{x^3(\frac{1}{2})^{x-1}-1}\geq 0$

$x^3\geq 0 \to x\geq 0$

$(\frac{1}{2})^{x-1}-1\geq 0 \to (\frac{1}{2})^{x-1}\geq 1 \to x-1\leq 0 \to x\leq 1$

$\cap$

$[0,1]$

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

$f(-x) \to -x+|2-x|\geq 0 \to |2-x|\geq x \to 2-x\geq x \to 2\geq 2x \to 1\geq x$

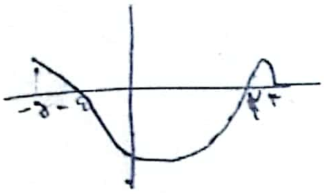
$2-x\leq -x \to \alpha$

$(-\infty,1]$

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

-4	1	2
- [+	∅ -	+

$(-4,1]\cup(2,+\infty)$



$y_1=\frac{1}{9x^4-7x^3-4x-2} \qquad y_2=\frac{1}{3x^2+ax+b} \qquad \sqrt{-(a+b)}=?$

$\to \frac{9x^4-7x^3-4x-2}{9x^4}$ [illegible] $\quad \frac{3x^2+ax+b}{3x^2+cx+d} \to 9x^4+3(a+c)x^3+(ac+3b+3d)x^2+(ad+bc)x+bd$

$a+c=0$

?

$f(x)=x^3+x \qquad y=\sqrt{f(x)-f(\frac{4}{x})}$

$f(x)-f(\frac{4}{x})=(x^3+x)-(\frac{64}{x^3}+\frac{4}{x})=(x-\frac{4}{x})(x^2+4+\frac{16}{x^2})$

$x-\frac{4}{x}\geq 0 \to \frac{x^2-4}{x}\geq 0 \to x^2-4\geq 0 \to \quad \to [-2,0)\cup[2,+\infty)$

$x^2\geq 4$

$x\geq 2 \qquad x\leq -2$

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$f(x^3+x) = 2x^2 - 1 \qquad f(2)+f(10) = ?$

$x=1 \to f(2) = 2(1)^2 - 1 \to 1 \qquad 7+1 = 8$

$x=2 \to f(10) = 2(2^2) - 1 \to 7$

$f(x) = x^3 - 6x^2 + 12x \qquad g(x) = x^3 + 9x^2 + 27x \qquad \dfrac{g(\sqrt[3]{7}-3)}{f(\sqrt[3]{2}+2)} = ?$

[illegible] $7-3$

$$\frac{(\sqrt[3]{7}-3)^3 + 9(\sqrt[3]{7}-3)^2 + 27(\sqrt[3]{7}-3)}{(\sqrt[3]{2}+2)^3 - 6(\sqrt[3]{2}+2)^2 + 12(\sqrt[3]{2}+2)}$$

$f(x) = \sqrt{x+4\sqrt{x-4}} \qquad g(x) = \sqrt{x-4\sqrt{x-4}}, \ x \geq 4 \qquad f(x)+g(x) = a+b\sqrt{x+c} \qquad \dfrac{a+b}{c} = ?$

$f(x)+g(x) = \sqrt{x+4\sqrt{x-4}} + \sqrt{x-4\sqrt{x-4}}$

$f(x) = \dfrac{x+2}{x^2-4x+3} \qquad g(x) = \{(2,1),(1,0),(3,5),(0,4)\} \qquad \dfrac{g}{f} = ?$

$(x-3)(x-1)$

$D_f = \mathbb{R} - \{3,1\}$

$D_g = \{2,1,3,4\} \to \dfrac{g}{f} : \{2,4\} - \{1,3\} = \{2,4\}$

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

الف) $f(2x) = \{(\frac{1}{2},2),(\frac{3}{2},-1)(2,2)(-\frac{1}{2},6)\}$

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

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

د) $\dfrac{2f}{g} = \{(1,-4),(3,-1),(-1,\frac{12}{9})\}$

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