نام و نام خانوادگی ..مهراز شیرازی.............. پاسخنامه تشریحی تکلیف شماره ..۶..... کلاس ..یازدهم A..........

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الف) $x^3-3x^2+3x=y \rightsquigarrow y=x^3-3x^2+3x-1+1 \rightsquigarrow y=(x-1)^3+1 \to \sqrt[3]{y-1}=x$

$\rightsquigarrow y\in \mathbb{R} \to R_f=\mathbb{R}$

ب) $y=\frac{1}{x^2-2x} \rightsquigarrow yx^2-2yx=1 \to yx^2-2yx-1=0 \xrightarrow{\Delta} \frac{2y\pm\sqrt{4y^2+4y}}{2y}$

$\xrightarrow{①} 4y^2+4y\geq 0 \to y\ \mathbb{R}$

$\xrightarrow{②} 2y\neq 0 \to y\neq 0$

$\xrightarrow{①\cap②} R_f=\mathbb{R}-\{0\}$

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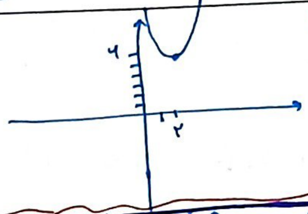
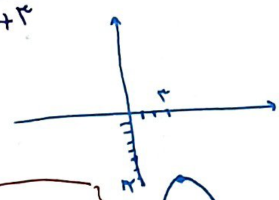
الف) $x^2-4x+10=y$



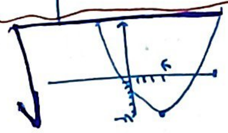
$\to R_f=[6\ \ +\infty)$

ب) $y=-x^2+6x+3$

$\to R_f=(-\infty\ \ 2]$



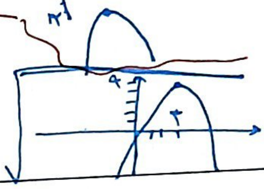
ج) $y=\sqrt{x^2-4x-3}$



$\to R_f=[0\ \ +\infty)$

د) $y=\sqrt{6x-x^2}$

$\to R_f=[3\ \ 0]$



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الف) $y=x^3-5x^2+2x+1 \rightsquigarrow R_f=\mathbb{R}$

ب) $y=x^7-6x^4+3x+2 \rightsquigarrow R_f=\mathbb{R}$

ج) $y=\sqrt{x^7-6x^2+5x+1} \rightsquigarrow R_f=[0\ \ +\infty)$

د) $y=(x^5-4x^2+3x+1)^2 \rightsquigarrow R_f=[0\ \ +\infty)$

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الف) $y=\frac{3x+1}{x-2}$

$\rightsquigarrow R_f=\mathbb{R}-\{\frac{a}{c}\} \rightsquigarrow R_f=\mathbb{R}-\{3\}$

ب) $y=\frac{2x+1}{x+1}$

$\rightsquigarrow R_f=\mathbb{R}-\{\frac{a}{c}\} \to R_f=\mathbb{R}-\{2\}$

الف) $y=\sqrt{\frac{2x+4}{x+1}} \rightsquigarrow R_f=\sqrt{\mathbb{R}-\{2\}} \to R_f=[0\ \ +\infty)-\{\sqrt{2}\}$

ب) $y=\sqrt{\frac{3x+1}{2-x}} \rightsquigarrow R_f=\sqrt{\mathbb{R}-\{-3\}} \to R_f=[0\ \ +\infty)$

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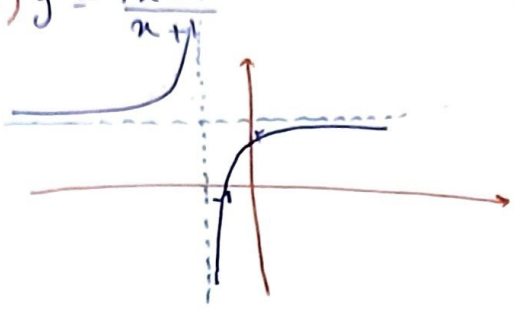
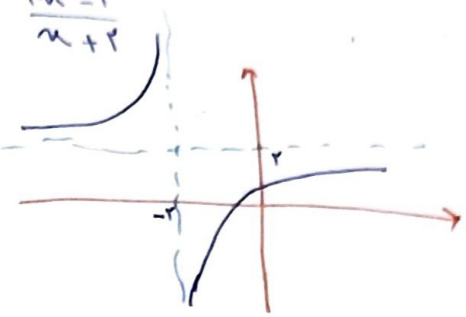
الف) $y = \frac{2x-4}{x+1}$



ب) $y = \frac{2x-1}{x+2}$



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الف) $y = \sin x + \frac{1}{\sin x} \rightsquigarrow R_f = (-\infty\ -2] \cup [2\ +\infty)$

ب) $y = \frac{x^4+1}{x^2} \rightsquigarrow y = x^2 + \frac{1}{x^2} \rightsquigarrow R_f = (-\infty\ -2] \cup [2\ +\infty)$

ج) $y = \frac{\sqrt{x^4+1}}{\sqrt{x}} \rightsquigarrow y = \sqrt{x^3} + \frac{1}{\sqrt{x^3}} \rightsquigarrow R_f = (-\infty\ -2] \cup [2\ +\infty)$

د) $y = \sqrt{x} + \frac{1}{\sqrt{x}} \rightsquigarrow y = \sqrt{x} + \frac{1}{\sqrt{x}} \rightsquigarrow R_f = [2\ +\infty)$

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الف) $y = x^2 + \frac{1}{x^2+2}$

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

$R_f = [\frac{1}{2} + \infty) - 2 \rightarrow R_f = [\frac{1}{2} + \infty)$

ب) $y = \frac{x^2+5}{\sqrt{x^2+4}}$

$y = \frac{x^2+4}{\sqrt{x^2+4}} + \frac{1}{\sqrt{x^2+4}} = \sqrt{x^2+4} + \frac{1}{\sqrt{x^2+4}}$

$\rightsquigarrow R_f = [\frac{5}{2} + \infty)$

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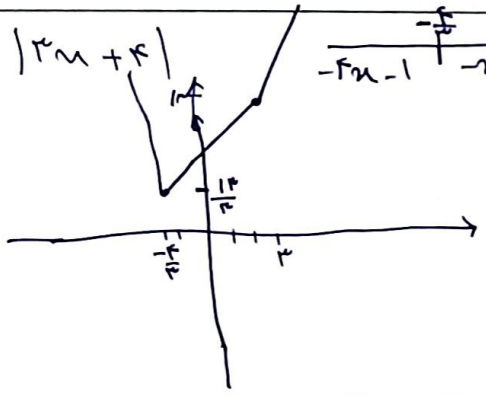
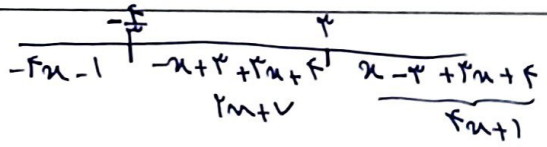
$y = |x-2| + |2x+4|$





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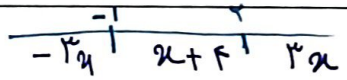
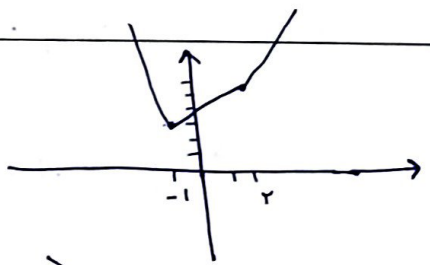
الف) $y = |x-2| + |2x+4|$



$R_f = [2\ +\infty)$



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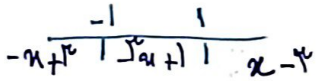
ب) $y = |2x-2| - |x+1|$



$R_f = [-2\ +\infty)$