دریا صادقی زاده ـ دهم دفتر A

سوال ۱) $y = x^3 - 3x^2 + 3x - 1 + 1 = (x-1)^3 + 1 \rightarrow y - 1 = (x-1)^3$

$\rightarrow x - 1 = \sqrt[3]{y-1} \rightarrow x = \sqrt[3]{y-1} + 1 \rightarrow R_f = \mathbb{R}$

$y = \dfrac{1}{x^2 - 2x} \rightarrow yx^2 - 2xy = 1 \rightarrow yx^2 - 2xy - 1 = 0$

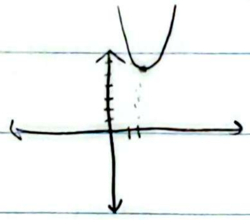
$x = \dfrac{+2y \pm \sqrt{4y^2 + 4y}}{2y} \rightarrow 4y(y+1) \geq 0 \rightarrow y = 0, -1$

	-1		0	
$+$		$-$		$+$

y هیچوقت صفر نیست

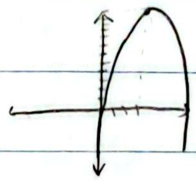
$\Rightarrow D_f = (-\infty, -1] \cup [0, +\infty)$

سوال ۲) $y = x^2 - 4x + 10 \quad \min \begin{vmatrix} 2 \\ 6 \end{vmatrix}$



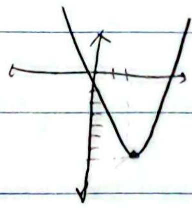
$\rightarrow R_f = [6, +\infty)$

$y = -x^2 + 6x + 3 \quad \max \begin{vmatrix} 3 \\ 12 \end{vmatrix}$



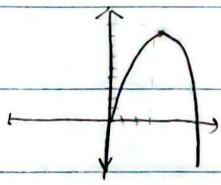
$R_f = (-\infty, 12]$

$y = \sqrt{x^2 - 4x - 3} \rightarrow \min \begin{vmatrix} 2 \\ -7 \end{vmatrix}$



$\rightarrow R_f = \sqrt{[-7, +\infty)} = [0, +\infty)$

$y = \sqrt{-x^2 + 6x} \rightarrow \max \begin{vmatrix} 3 \\ 9 \end{vmatrix}$



$R_f = \sqrt{(-\infty, 9]} = [0, 3]$

۳) د) $R_f = [0, +\infty)$ ج) $R_f = \sqrt{\mathbb{R}} = [0, +\infty)$ ب) $R_f = \mathbb{R}$ الف) $R_f = \mathbb{R}$

سوال ۴) الف) $R_f: \mathbb{R}-\{3\}$ ب) $R_f: \mathbb{R}-\{2\}$

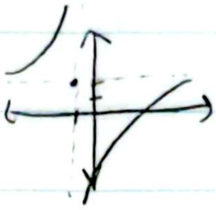
سوال ۵)

الف) $R_f: \sqrt{\mathbb{R}-\{2\}} = [0,+\infty)-\{\sqrt{2}\}$

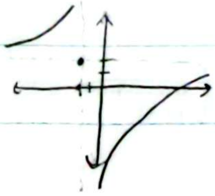
ب) $R_f: \sqrt{\mathbb{R}-\{-3\}} = [0,+\infty)$

سوال ۶)

الف) $y=\frac{2x-3}{x+1} \to$ { مجانب قائم: -1 ، مجانب افقی: 2 }



ب) $y=\frac{2x-1}{x+2} \to$ { مجانب قائم: -2 ، مجانب افقی: 2 }



سوال ۷)

الف) $\sin x+\frac{1}{\sin x}$ $\underbrace{-1\le \sin x \le 1}$ $R_f: (-\infty,-2]\cup[2,+\infty)$

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

ج) $\sqrt[3]{x}+\frac{1}{\sqrt[3]{x}} \rightsquigarrow R_f: (-\infty,-2]\cup[2,+\infty)$

د) $\sqrt{x}+\frac{1}{\sqrt{x}}$ $\underbrace{\sqrt{x}\ge 0}$ $\to R_f: [2,+\infty)$

سوال ۸)

$y=x^2+\frac{1}{x^2+3}+3-3 \to \underbrace{x^2+3+\frac{1}{x^2+3}}-3 \Rightarrow R_f: [\frac{10}{3}-3,+\infty)$

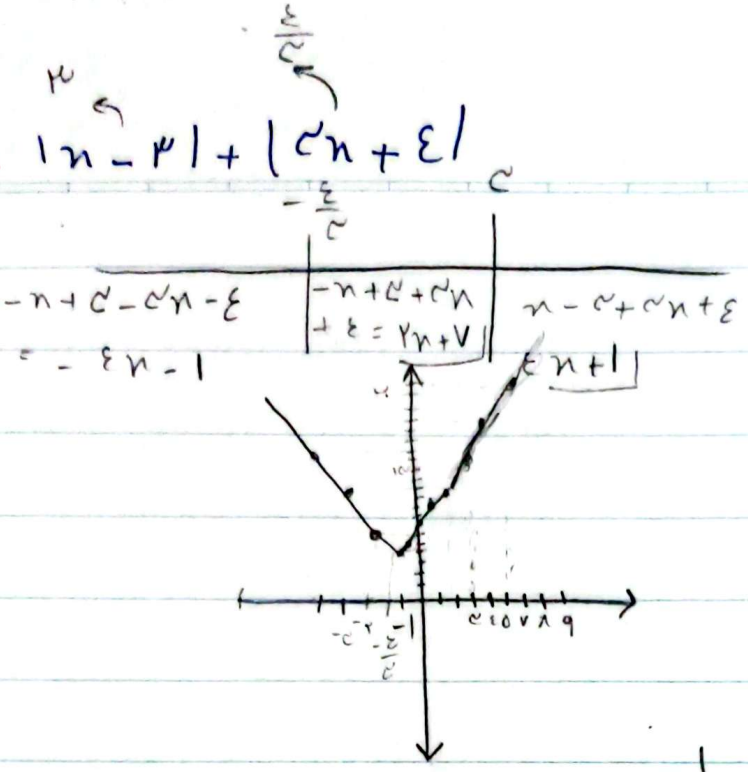
کمترین مقدار $= 3+\frac{1}{3}$

$y=\underbrace{\sqrt{x^2+4}}+\frac{1}{\sqrt{x^2+4}} \Rightarrow R_f=[2/5,+\infty)$

کمترین $= 2$

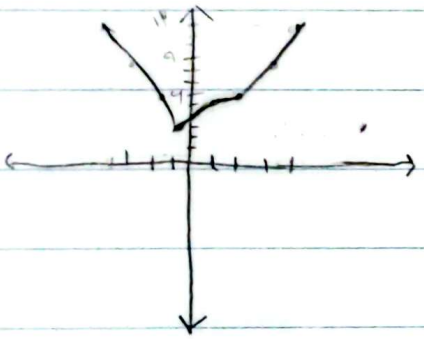
سوال ۹)

$y = |x-2| + |2x+3|$



سوال ۱۰)

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



$y = |2x-4| - |x+1|$