

شماره تکلیف: ۶

مقطع: یازدهم ریاضی

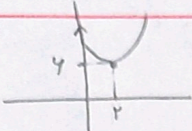
نام و نام خانوادگی: سارا زنگنه

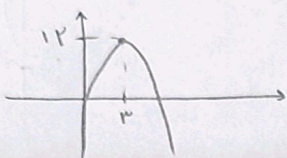
سوال (۱)

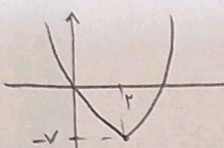
الف) $y = x^3 - 3x^2 + 3x \rightarrow (x-1)^3 + 1 \rightarrow y-1 = (x-1)^3 \rightarrow x = 1 + \sqrt[3]{y-1} \Rightarrow R_f = \mathbb{R}$

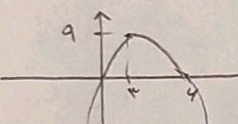
ب) $y = \frac{1}{x^2 - 2x} \rightarrow yx^2 - 2xy - 1 = 0 \rightarrow \frac{2y \pm \sqrt{4y^2 + 4y}}{2y} \rightarrow 2 \pm \sqrt{y(y+1)}$
 $y \rightarrow y \neq 0 \Rightarrow R_f = (-\infty, -1] \cup (0, +\infty)$

سوال (۲)

الف) $y = x^2 - 4x + 10$  $\Rightarrow R_f = [4, +\infty)$

ب) $y = -x^2 + 4x + 3$  $\Rightarrow R_f = (-\infty, 7]$

ج) $y = \sqrt{x^2 - 4x - 3}$  $\Rightarrow R_f = [0, +\infty)$

د) $y = \sqrt{4x - x^2}$  $\Rightarrow R_f = [0, 2]$

سوال (۳)

الف) $y = x^3 - 6x^2 + 9x + 1 \Rightarrow R_f = \mathbb{R}$

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

ج) $y = \sqrt{x^3 - 4x^2 + 6x + 1} \Rightarrow R_f = [0, +\infty)$

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

سوال (۴)

الف) $y = \frac{3x+1}{x-2} \Rightarrow R_f = \mathbb{R} - \{3\}$

ب) $y = \frac{2x+1}{x+1} \Rightarrow R_f = \mathbb{R} - \{2\}$

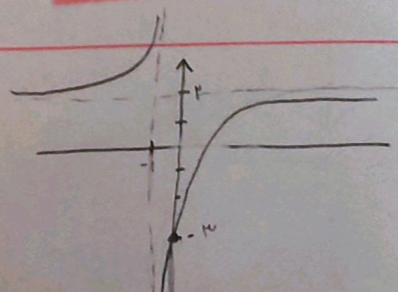
سوال (۵)

الف) $y = \sqrt{\frac{2x+2}{x+1}} \Rightarrow R_f = [0, +\infty) - \{\sqrt{2}\}$

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

سوال (۶)

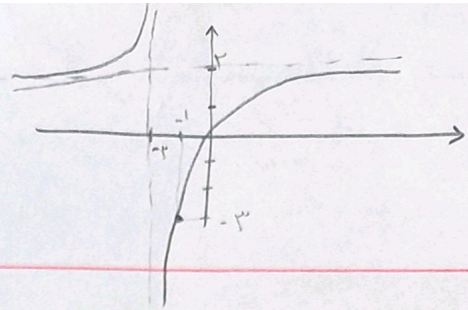
الف) $y = \frac{2x-3}{x+1}$
 معادله افقی: $\frac{a}{c} = 2 \rightarrow y$
 معادله قائم: $-1 = x$



نقطه: $\begin{bmatrix} 0 \\ -3 \end{bmatrix}$

ب) $y = \frac{2x-1}{x+2}$

محاسنور = $-2 \rightarrow x$
 محاسنفتی = $2 \rightarrow y$
 نقطه: $\begin{bmatrix} -1 \\ -3 \end{bmatrix}$



سوال ۷

الف) $y = \sin x + \frac{1}{\sin x} \Rightarrow R_f = [2, +\infty)$

ب) $y = \frac{x^4+1}{x^3} = x^3 + \frac{1}{x^3} \Rightarrow R_f = (-\infty, -2] \cup [2, +\infty)$

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

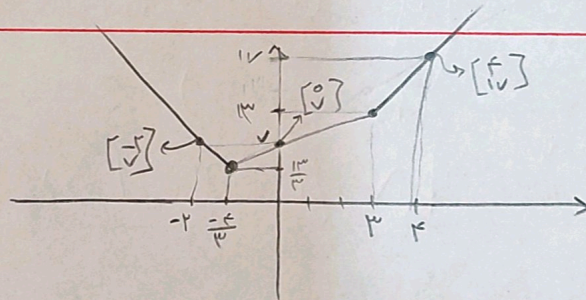
د) $y = \sqrt{x} + \frac{1}{\sqrt{x}} \Rightarrow R_f = [2, +\infty)$

الف) $y = x^2 + \frac{1}{x^3+3} \rightarrow [(x^2+3) + \frac{1}{x^3+3}] - 3 \Rightarrow R_f = [\frac{1}{3}, +\infty)$
 $\min_{x=0}$

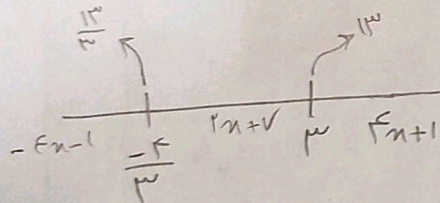
سوال ۸

ب) $y = \frac{x^2+2}{\sqrt{x^2+4}} = \sqrt{x^2+4} + \frac{1}{\sqrt{x^2+4}} \Rightarrow R_f = [\frac{2}{\sqrt{2}}, +\infty)$
 $\min \rightarrow x=0$

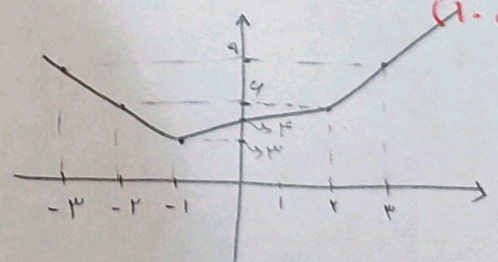
$y = |x-3| + |3x+4|$



سوال ۹



الف) $y = |x-2| + |2x+2|$
 $\Rightarrow R_f = [3, +\infty)$



سوال ۱۰

ب) $y = |2x-2| - |x+1|$
 $\Rightarrow R_f = [-2, +\infty)$

