

نام و نام خانوادگی: زهراسادات حسینیه
 یوسفنامه شریعتی شهاب... کلاس: یازدهم ریاضت B

19, 10

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

الف) $\rightarrow R_f = \mathbb{R}$

ب) $y = \frac{1}{x^2 - 2x - 1 + 1} = \frac{1}{(x-1)^2 + 1} \rightarrow y(x-1)^2 + y = 1 \rightarrow (x-1)^2 = \frac{1+y}{y} \rightarrow x-1 = \sqrt{\frac{1+y}{y}} + 1$

$\rightarrow \frac{1+y}{y} \geq 0 \rightarrow \frac{-1}{1+y} \geq 0 \Rightarrow R_f = (-\infty, -1] \cup (0, +\infty)$

الف) $y = x^2 - 2x + 10 \rightarrow -\frac{b}{2a} = \frac{2}{2} = 1 \rightarrow 1 - 1 + 10 = 10 \rightarrow R_f = [10, +\infty)$

ب) $-x^2 + 2x + 3 \rightarrow -\frac{b}{2a} = \frac{-2}{-2} = 1 \rightarrow -1 + 1 + 3 = 3 \rightarrow R_f = (-\infty, 3]$

ج) $\sqrt{x^2 - 2x - 3} \rightarrow \frac{b}{2a} = \frac{2}{2} = 1 \rightarrow 1 - 1 - 3 = -3 \rightarrow [-3, +\infty) \xrightarrow{\sqrt{\quad}} [0, +\infty) = R_f$

د) $\sqrt{4x - x^2} \rightarrow -\frac{b}{2a} = \frac{-2}{-2} = 1 \rightarrow 1 - 1 = 0 \rightarrow (-\infty, 1] \xrightarrow{\sqrt{\quad}} [0, 1] = R_f$

الف) $\rightarrow R_f = \mathbb{R} \rightarrow$ چون هر عددی می تواند مربع باشد

ب) $\rightarrow R_f = \mathbb{R} \rightarrow$ "

ج) $\mathbb{R} \xrightarrow{\sqrt{\quad}} [0, +\infty) = R_f$

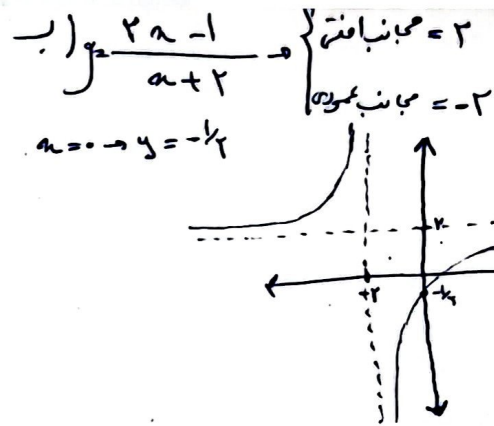
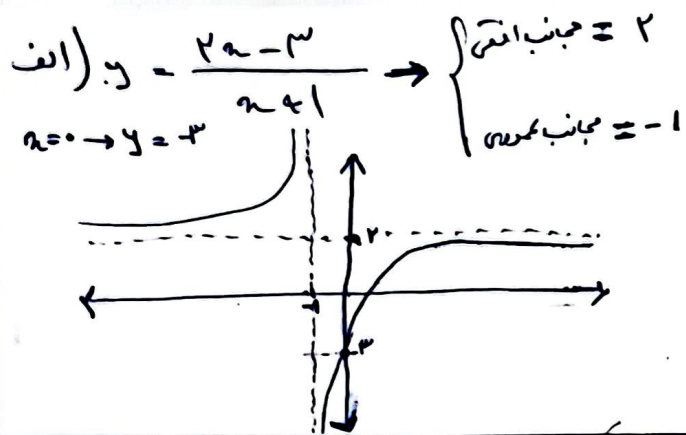
د) $\rightarrow R_f = [0, +\infty)$

الف) $f = \frac{x^2 + 1}{x - 2} \xrightarrow{\text{همگراشت}} ad \neq cb \rightarrow -2 \neq 1, c \neq 0 \Rightarrow R_f = \mathbb{R} - \{2\}$

ب) $f = \frac{x + 1}{x + 1} \xrightarrow{\text{همگراشت}} ad \neq cb \rightarrow 1 \neq 2, c \neq 0 \Rightarrow R_f = \mathbb{R} - \{2\}$

الف) $\sqrt{\frac{x^2 + 4}{x + 1}} \xrightarrow{\text{همگراشت}} \mathbb{R} - \{2\} \xrightarrow{\sqrt{\quad}} R_f = [0, +\infty) - \{2\}$

ب) $\sqrt{\frac{x^2 + 1}{-x + 2}} \xrightarrow{\text{همگراشت}} \mathbb{R} - \{2\} \xrightarrow{\sqrt{\quad}} R_f = [0, +\infty)$



الف) $\sin x + \frac{1}{\sin x} \rightarrow R_f = (-\infty, -1] \cup [1, +\infty)$

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

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

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

الف) $x^r + \frac{1}{x^r} - 2 \rightarrow x^r + \frac{1}{x^r} \neq 1 \Rightarrow x=0 \rightarrow \frac{1}{x^r} = \frac{1}{x^r} \rightarrow R_f = [\frac{1}{x^r}, +\infty)$

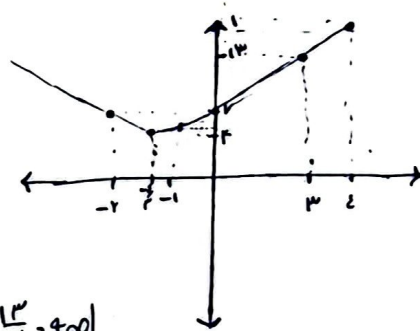
ب) $\frac{x^r + \varepsilon + 1}{\sqrt{x^r + \varepsilon}} = \sqrt{x^r + \varepsilon} + \frac{1}{\sqrt{x^r + \varepsilon}} \rightarrow R_f = [1, +\infty)$

$x=0 \rightarrow y = \frac{1}{\sqrt{\varepsilon}}$

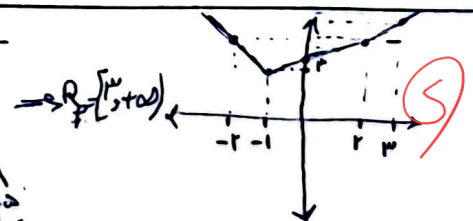
$y = |x-3| + |3x+\varepsilon|$

$\begin{cases} -\varepsilon x - 1 & ; x < -\varepsilon/\mu \\ 3x + \varepsilon & ; -\varepsilon/\mu \leq x < 3 \\ \varepsilon x + 1 & ; x \geq 3 \end{cases}$

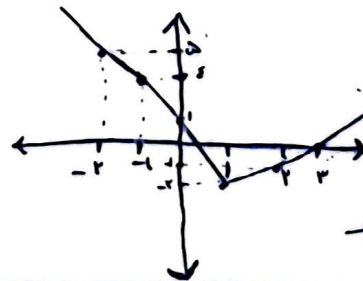
$R_f = [\frac{1}{\mu}, +\infty)$



الف) $|x-1| + |2x+2| \rightarrow \begin{cases} -x+3 & ; x < -1 \\ -3x+1 & ; -1 \leq x < 1 \\ x-3 & ; x \geq 1 \end{cases}$



ب) $|2x-1| - |x+1| \rightarrow \begin{cases} -x+3 & ; x < -1 \\ -3x+1 & ; -1 \leq x < 1 \\ x-3 & ; x \geq 1 \end{cases}$



$\rightarrow R_f = [1, +\infty)$