

۲۰ آفندین:

مکتبہ علمیہ پور - روضہ شمیم حسنہ دہشت

الف) $\frac{|x|+1}{|x|-2}$ $\frac{Q+1}{Q-2}$ $0 \leq Q \rightarrow +\infty$

ب) $y = \frac{x^2+1}{|x|} \Rightarrow \frac{|x|+1}{|x|}$ (۲)

$0 = 2 - \frac{1}{x} + 0 \rightarrow 1$ $\sqrt{0}$

$\Rightarrow |x| + \frac{1}{|x|} \rightarrow a + \frac{1}{a} \Rightarrow [2, +\infty)$

$(-\infty, -\frac{1}{x}] \cup (1, +\infty)$

$y = \frac{x^2+2x-2}{x+3} \Rightarrow yx + 3y = x^2 + 2x - 2$ (۲)

$x^2 + (2-y)x - 2 - 3y = 0 \Rightarrow x = \frac{y-2 \pm \sqrt{y^2-4y+16+12y}}{2}$

$y^2 + 8y + 12 \geq 0 \Rightarrow \frac{-4}{2} \leq y \leq \frac{-2}{2} \Rightarrow (-\infty, -4] \cup [-2, +\infty)$

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

$P_f = x^2 - x + 1 \neq 0 \Rightarrow \Delta < 0$
 $\Rightarrow D_f \subset \mathbb{R}$ (۲)

$x^2 - x = 0 \rightarrow [-\frac{1}{x} + \infty) \rightarrow x^2 - x = -\frac{1}{x} \Rightarrow 0$

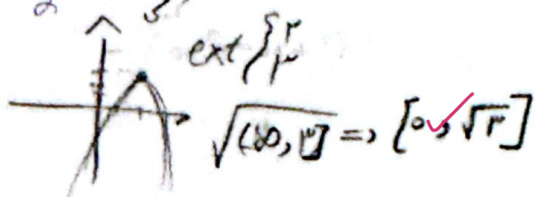


$\Rightarrow R \subset [0, 1)$

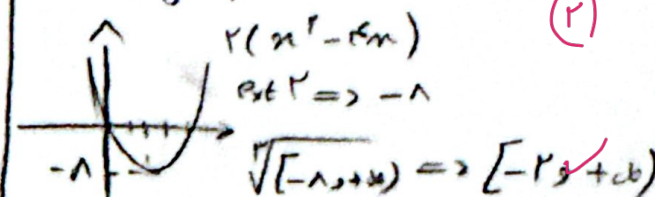
$x^2 - x = +\infty \Rightarrow \frac{1}{x} \rightarrow 0$

مفہم ۵۰

الف) $y = \sqrt{-x^2+4x-1}$



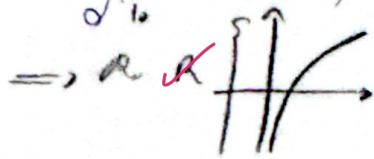
ب) $y = \sqrt{2x^2-8x}$



سوال ۴) پیرد؟

(۲)

الف) $\log(x^3-x+1)$



ب) $\log(\frac{x^2+1}{x})$ سوال ۵) پیرد؟

$\Rightarrow R = [1, +\infty)$

$x + \frac{1}{x} \Rightarrow [2, +\infty)$

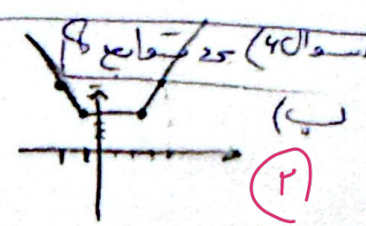
الف) $|2x-1| - |x-3|$

ب) $|x-3| + |x+1|$

$\begin{cases} 1 \rightarrow -2 \\ 3 \rightarrow 4 \\ 0 \rightarrow -1 \\ 2 \rightarrow 0 \end{cases}$



$\begin{cases} 3 \rightarrow 4 \\ -1 \rightarrow 4 \\ -2 \rightarrow 2 \\ 2 \rightarrow 0 \end{cases}$



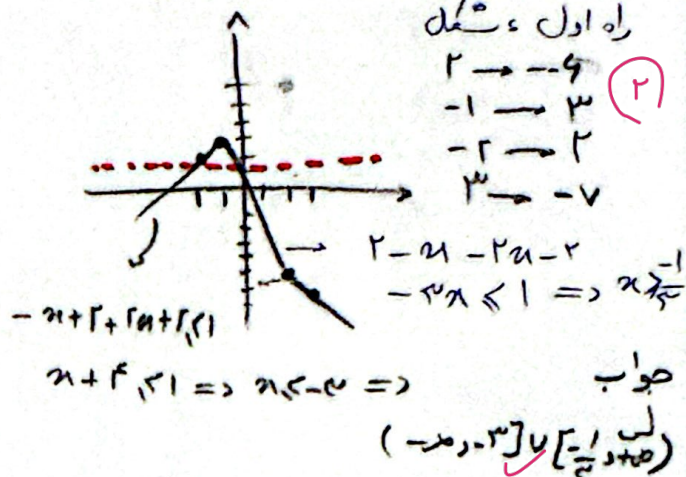
$R_f = [-2, +\infty)$

$R_f = [5, +\infty)$

$$|x-2| - |2x+2| \leq 1$$

راه دوم امکان دارد

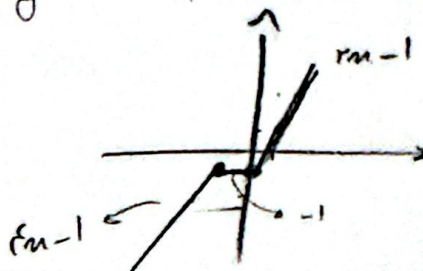
$$\begin{aligned} & x+2 \leq 1 \quad \Rightarrow \quad x \leq -3 \\ & -x+2-2x-2 \leq 1 \quad \Rightarrow \quad -3x \leq 1 \quad \Rightarrow \quad x \geq -\frac{1}{3} \quad \checkmark \\ & \text{(III)} \quad \left[-\frac{1}{3}, 2\right] \quad \text{(II)} \quad \checkmark \\ & \text{IV} \cup \text{II} \cup \text{III} = (-\infty, -3] \cup \left[-\frac{1}{3}, +\infty\right) \end{aligned}$$



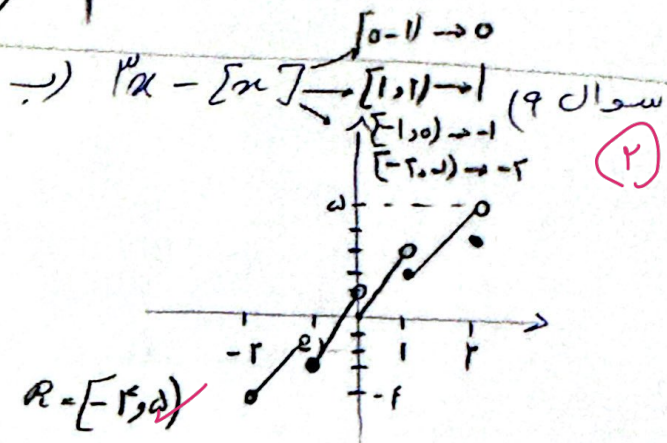
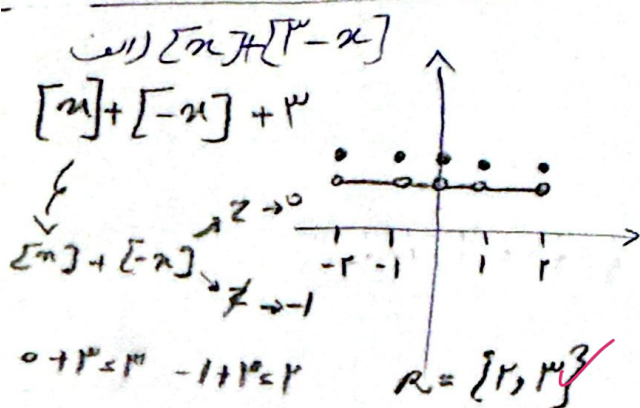
$$y = 2x - |2x+1| + |x|$$

سوال ۸) برد تابع

$$\begin{aligned} 0 & \rightarrow -1 \\ -\frac{1}{x} & \rightarrow -\frac{1}{x} + \frac{1}{x} \rightarrow -1 \\ 1 & \rightarrow 1 \quad -1 \rightarrow -3 \end{aligned}$$



$$R_f = R \quad \checkmark$$



ج) $\sin^2 x - \sin x + 1$
 $1 \rightarrow 1$
 $-1 \rightarrow 3$
 $\frac{1}{x} \rightarrow \frac{3}{x}$
 $R = \left[\frac{3}{x}, 3\right] \quad \checkmark$

د) $\sin^2 x + \sin^2 x + 1$
 $1 \rightarrow 3$
 $0 \rightarrow 1$
 $-\frac{1}{x} \rightarrow -\frac{1}{x}$
 $R = [1, 3] \quad \checkmark$

سوال ۱۰
(۲)