

الف) $y = \frac{|u|+1}{|u|-2} \rightarrow |u| = \frac{y+1}{y-1} \gg \frac{-\frac{1}{2}}{+\frac{1}{2}-\frac{1}{2}+}$

(۱)

(۲)

$R_f = (-\infty, -\frac{1}{2}] \cup (1, +\infty)$ ✓

ب) $y = \frac{u^2+1}{|u|} = |u| + \frac{1}{|u|} \xrightarrow{u \gg 0} R_f = [2, +\infty)$ ✓

$y = \frac{u^2+2u-2}{u+3} \rightarrow yu+3y = u^2+2u-2 \rightarrow u^2+(1-y)u-(2+3y) = 0$

(۲) (۲)

$y = \frac{-1+y \pm \sqrt{\Delta}}{2} \Rightarrow \Delta \geq 0 \sim 4+y^2-4y+1+12y \gg$

$R_f = (-\infty, -\frac{1}{2}] \cup [-2, +\infty)$ ✓ $y^2+12y+1 \gg 0$
($y+6(y+2) \gg 0$) $\frac{-6-x}{+9-\frac{1}{9}+}$

$f(u) = \frac{u^2-u+\frac{1}{2}}{u^2-u+\frac{1}{2}}$

$u^2-u+\frac{1}{2} \neq 0 \xrightarrow{\Delta > 0} D_f = \mathbb{R}$ ✓

(۲) (۳)

$\frac{(u-\frac{1}{2})^2}{(u-\frac{1}{2})^2+\frac{1}{4}} \rightarrow \frac{\square^2+0}{\square^2+\frac{1}{4}}$

$\begin{cases} \max \square^2 = \infty \\ \min \square^2 = 0 \end{cases} \rightarrow \frac{\infty}{\infty+\frac{1}{4}} = 1^-$
 $\frac{0}{0+\frac{1}{4}} = 0$

$R_f = [0, 1)$ ✓

الف) $y = \sqrt{-u^2+4u-1} \xrightarrow{(f)} \frac{-\Delta}{2a} = \frac{-(16-4)}{-4} = 3$

(۲) (۴)

$R_f = (-\infty, 3] \xrightarrow{(f)} R_{(g)} = [0, \sqrt{3}]$ ✓

ب) $y = \sqrt{2u^2-4u} \xrightarrow{(f)} \frac{-\Delta}{2a} = \frac{-(0+4)}{2} = -1$

$R_{(g)} = [-1, +\infty) \xrightarrow{(f)} R_f = [-2, +\infty)$ ✓

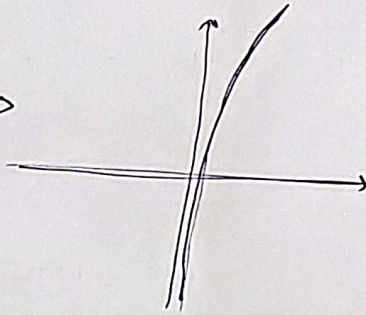
الف) $y = \log_{(x^3 - x + 1)}^{(f)}$

$R_f = \mathbb{R}$ (ریشه این معادله را پیدا کنید)

(۲) (۵)

$\Rightarrow y = \log_g^{\mathbb{R}}$

$R_g = \mathbb{R}$ ✓

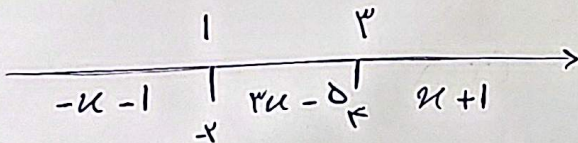


ب) $y = \log_{(x^2 + 1)}^{(f)}$

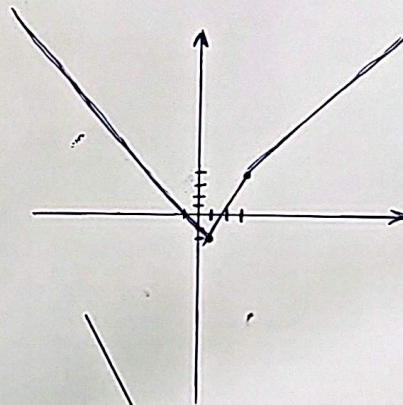
$x + \frac{1}{x} \xrightarrow{x > 0} R_f = [2, +\infty)$ ✓

$\begin{cases} \log_{x^2+1}^x = 1 \\ \log_{x^2+1}^{+\infty} = +\infty \end{cases} \Rightarrow R_g = [1, +\infty)$ ✓

الف) $y = |2x - 2| - |x - 3|$

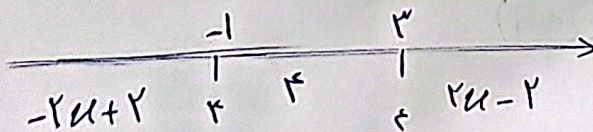


$R_f = [-2, +\infty)$ ✓

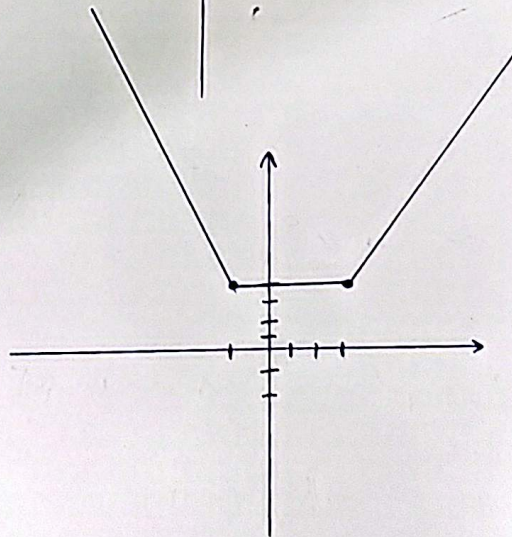


(۲) (۶)

ب) $y = |x - 3| + |x + 1|$



$R_f = [2, +\infty)$ ✓

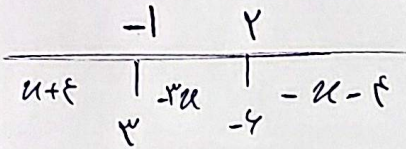


در ادامه بر

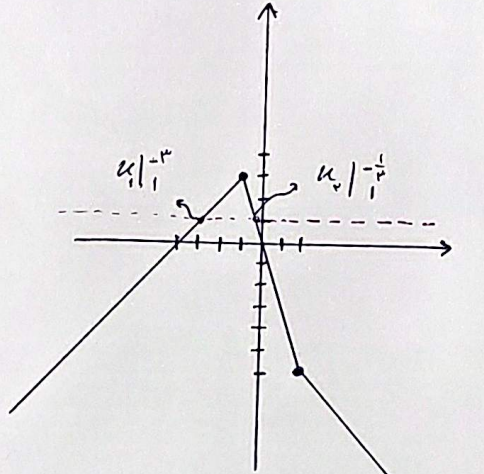
معین دفری

تکلیف ها

$$|x-2| - |2x+2| < 1$$

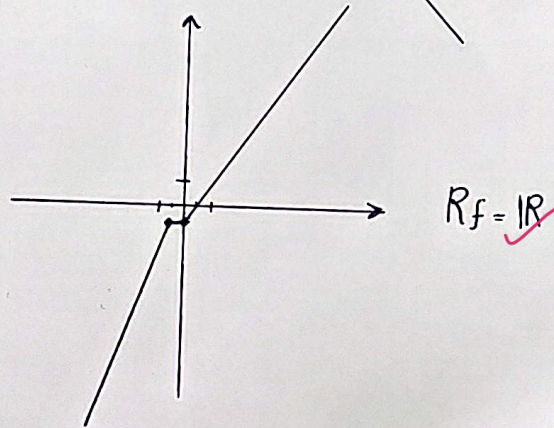
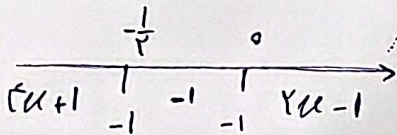


$$x \in (-\infty, -3] \cup [-\frac{1}{2}, +\infty) \checkmark$$



(2) (7)

$$f(x) = 3x - |2x+1| + |x|$$

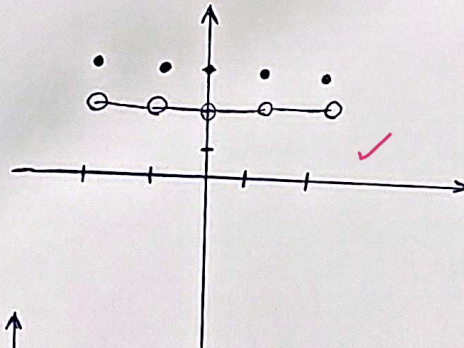


$$R_f = \mathbb{R} \checkmark$$

(2) (1)

$$[a] + [3-a] \rightarrow [a] + [-a] + 3$$

$$R_f = \{2, 3\} \checkmark$$

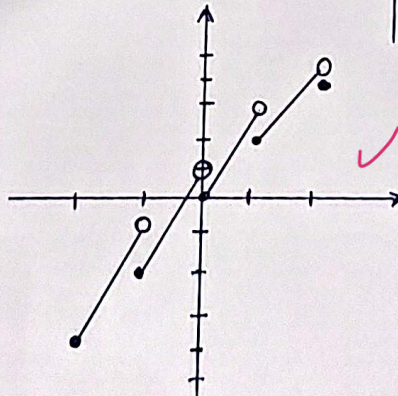


(2) (9)

$$b) 3x - [a]$$

$$R_f \xrightarrow{\text{در بازه مشخصه}} [-4, \infty)$$

$$R_f \xrightarrow{\text{در آن بازه به طوری}} \mathbb{R} \checkmark$$



داده: A بر

معین رضی

تکلیفیات ۵

الف) $y = \sin^2 u - \sin u + 1$

$$\square = \sin \begin{cases} \text{max} : 1 \longrightarrow 1 \\ \text{min} : -1 \longrightarrow 3 \\ \frac{h}{r\alpha} : \frac{1}{r} \longrightarrow \frac{3}{r} \end{cases}$$

$$R_f = \left[+\frac{3}{r}, 3 \right]$$

① ②

ب) $y = \sin^2 u + \sin^2 u + 1$

$$\square = \sin^2 \begin{cases} \text{max} : 1 \longrightarrow 3 \\ \text{min} : 0 \longrightarrow 1 \\ \frac{h}{r\alpha} : -\frac{1}{r} \times \end{cases}$$

$$R_f = [1, 3]$$