

الف)

$$y^2 - 2y - 1 = 0 \quad x_{1,2} = \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow \frac{2y \pm \sqrt{4y^2 + 4}}{2y}$$

$\Delta > 0$

$$(-2y)^2 - 4(-1) \geq 0 \Rightarrow 4y^2 + 4 \geq 0 \Rightarrow 4y(y+1) \geq 0$$

$$\frac{+}{+} - \frac{+}{-} + \quad R = \mathbb{R} - (-1, 0)$$

$$x(s) = \frac{-b}{2a} \Rightarrow \frac{2}{2} = 1 \Rightarrow y(s) = 1^2 - 1 + 1 = 1 \Rightarrow \alpha > 0$$

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

$$b) \quad x(s) = \frac{-b}{2a} = \frac{-4}{-2} = 2 \Rightarrow y(s) = 1^2 \Rightarrow (-\infty, 1]$$

$$c) \quad x(s) = \frac{-b}{2a} = \frac{2}{2} = 1 \Rightarrow y(s) = 1 \Rightarrow \sqrt{1} \Rightarrow [1, +\infty) \Rightarrow [1, +\infty)$$

$$d) \quad x(s) = \frac{-4}{-2} = 2 \Rightarrow y(s) = 4 \Rightarrow \sqrt{4} \Rightarrow [2, +\infty) \Rightarrow R = (0, 4]$$

الف) $\mathbb{R} \Rightarrow$ زیرا در تمام اعداد حقیقی
تغییر صورت است

ب) $\mathbb{R}$

ج) $[0, +\infty)$

د) $\mathbb{R}$

$$الف) \quad R = \mathbb{R} - \{2\}$$

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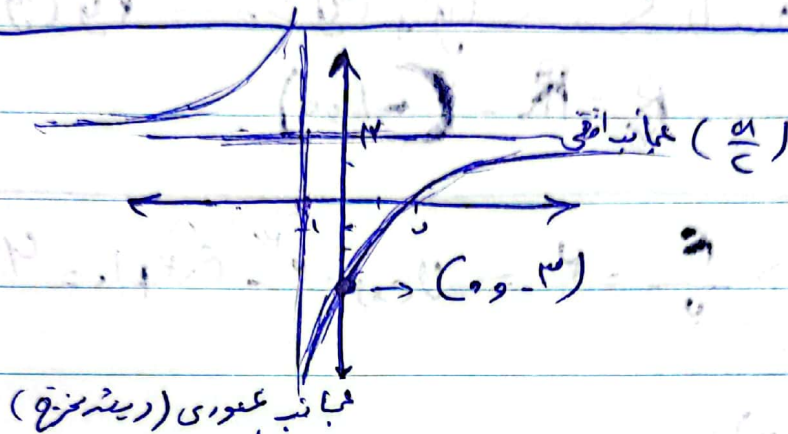
$$ج) \quad R = \mathbb{R} - \{\frac{\alpha}{2}\}$$

PARCIS

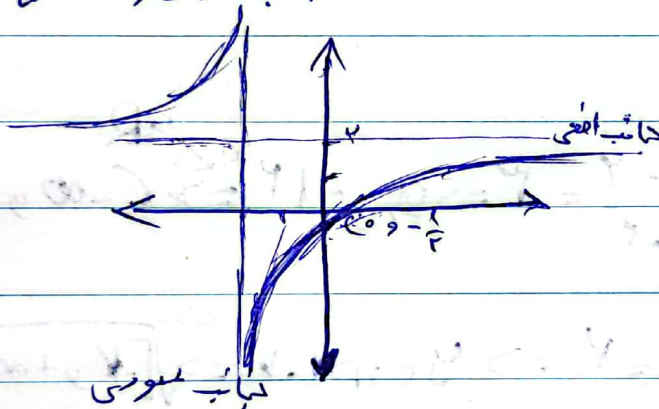
الف) $R = \sqrt{x-1} \Rightarrow [0+\infty) - \{1\}$

ب) $R = \sqrt{x-3} \Rightarrow [0+\infty)$

الف)



ب)



الف) $R = [2+\infty) \cup (-\infty, -4]$

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

ج)

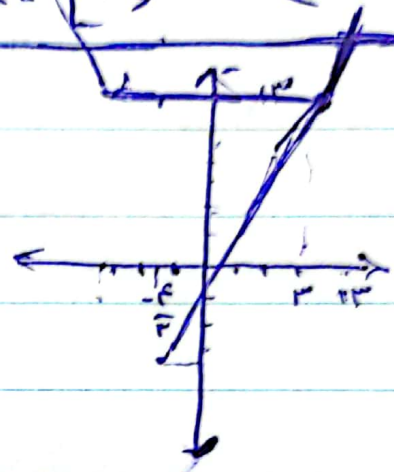
د) $R = [2+\infty)$

الف) $x^2 + \frac{1}{x^2 + 1} \Rightarrow R = [\frac{1}{2}, +\infty)$

ب) $\frac{x^2 + 1 + 1}{\sqrt{x^2 + 1}} \Rightarrow \frac{x^2 + 1}{\sqrt{x^2 + 1}} + \frac{1}{\sqrt{x^2 + 1}} = \sqrt{x^2 + 1} + \frac{1}{\sqrt{x^2 + 1}}$

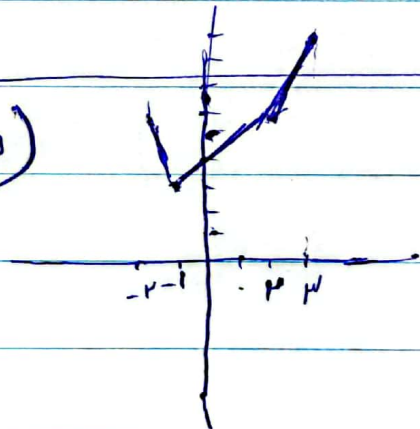
$R = [2, +\infty)$

$$\begin{cases} x^2 - 1 & x < -\frac{1}{2} \\ x^2 + 1 & -\frac{1}{2} < x < \frac{1}{2} \\ x^2 + 1 & x > \frac{1}{2} \end{cases}$$



$-\frac{1}{2} - \frac{1}{2} = -1$

الف) $R = [2, +\infty)$



از روش نقطه گذاری
استفاده کردم

ب)

