

$\langle \text{سپیش خلیا} \rangle$ $\langle \text{بینا خا} \rangle$ $\langle \text{پارهم دختا} \rangle$

① بد توابع زیر چیست؟

$$y = x^3 - 3x^2 + 3x$$

$$R = \mathbb{R}$$

$$y = \frac{1}{x^2 - 2x}$$

$$y x^2 - 2x y = 1$$

$$R = \mathbb{R} - (-1)$$

$$y \neq 0$$

$$y x^2 - 2y x - 1 = 0$$

$$\Delta \geq 0$$

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

$$4y^2 + 4y \geq 0$$

$$y^2 + y \geq 0$$

$$y(y+1) \geq 0$$

$$y \in (-\infty, -1] \cup [0, +\infty)$$

$$y = x^2 - 4x + 10$$

$$R = [4, +\infty)$$

$$x_s = \frac{-b}{a} = 2$$

$$y_s = 4 - 16 + 10 = -2$$

$$y = x^2 + 4x + 3$$

$$R = (-\infty, 12]$$

$$x_s = \frac{-b}{a} = -2$$

$$y_s = -9 + 16 + 3 = 10$$

$$y = \sqrt{x^2 - 4x - 3}$$

$$R = [0, +\infty)$$

$$x_s = \frac{-b}{a} = 2$$

$$y_s = 4 - 8 - 3 = -7$$

$$S(2, -7)$$

$$y = \sqrt{4x - x^2}$$

$$R = [0, 4] = R = [0, 4]$$

$$-x^2 + 4x$$

$$16 - 4 = 12$$

$$\frac{-4}{-2} = 2$$

$$S(2, 2)$$

PARAMOUNT

$$y = x^3 - 2x^2 + 3x + 1, \quad R = \mathbb{R}$$

(3)

$$y = x^3 - 4x^2 + 3x + 1, \quad R = \mathbb{R}$$

9

$$y = \sqrt{x^3 - 4x^2 + 2x + 1}, \quad R = [0, +\infty)$$

$$y = (x^3 - 4x^2 + 3x + 1)^2$$

$$R = [0, +\infty)$$

$$y = \frac{3x+1}{x-2}$$

$$R = \mathbb{R} - \{2\}$$

(4)

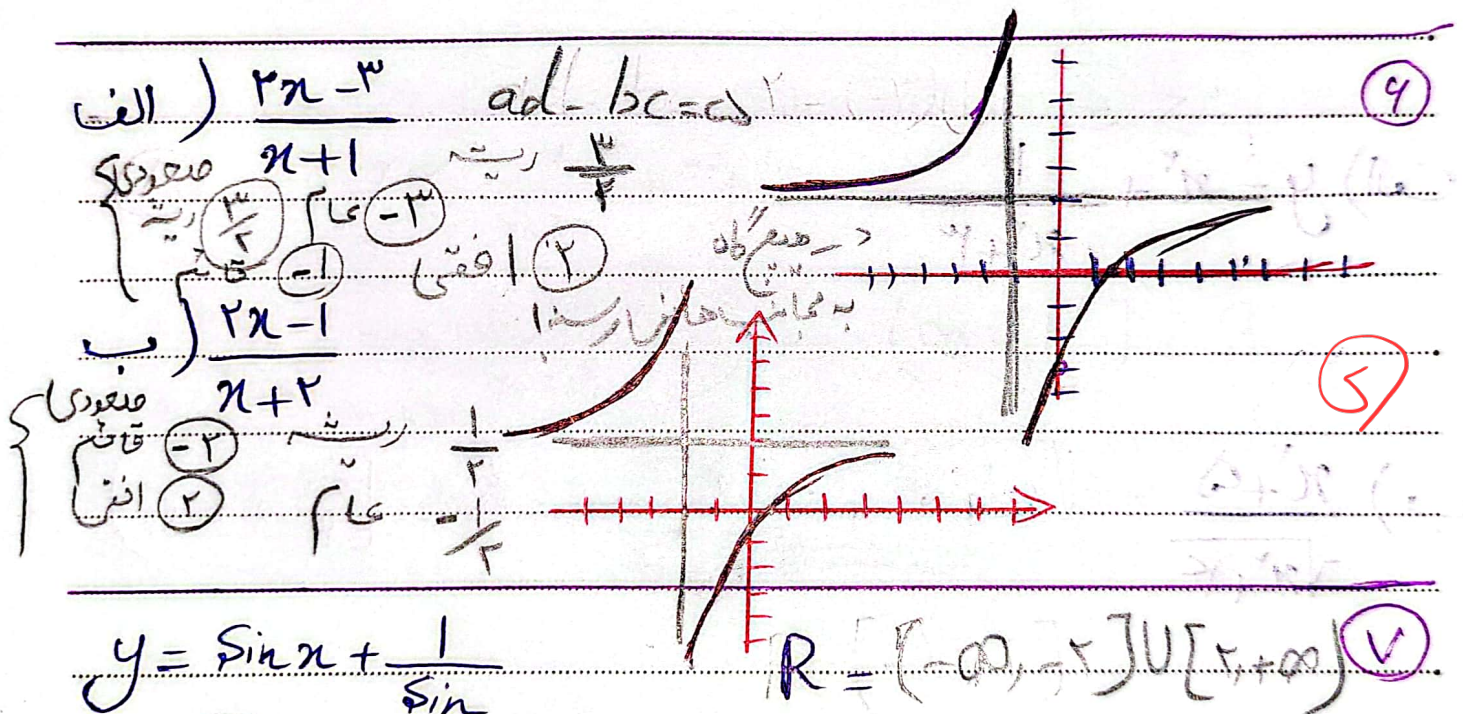
9

$$y = \frac{2x+1}{x+1}$$

$$R = \mathbb{R} - \{-1\}$$

الف) $\sqrt{\frac{2x+3}{x+1}}$ $R = [0, +\infty) - \{2\}$ (5)

ب) $\sqrt{\frac{3x+1}{2-x}}$ $R = [0, +\infty)$ (1, 10)



$\frac{x^4+1}{x^2} = x^2 + \frac{1}{x^2}$ $R = (-\infty, -2] \cup [2, +\infty)$ (9)

P

Date :

Subject :

$$\frac{\sqrt[3]{x^3+1}}{\sqrt[3]{x}} = \sqrt[3]{x} + \frac{1}{\sqrt[3]{x}} \quad (-\infty, -1] \cup [1, +\infty)$$

$$\sqrt{x} + \frac{1}{\sqrt{x}} \quad R = [1, +\infty)$$

ج) $y = x^r + \frac{1}{x^r+r}$

$$x^r+r + \frac{1}{x^r+r} \geq r$$

(A)

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

$$x^r + \frac{1}{x^r+r} \geq -1$$

(1,0)

ب) $\frac{x^r+d}{\sqrt{x^r+r}} = \sqrt{x^r+r} + \frac{1}{\sqrt{x^r+r}} \quad R = [\frac{d}{r}, +\infty)$

$$x^r+r + \frac{1}{x^r+r} \sim x^r \rightarrow \frac{1}{r} \quad R = [\frac{1}{r}, +\infty)$$

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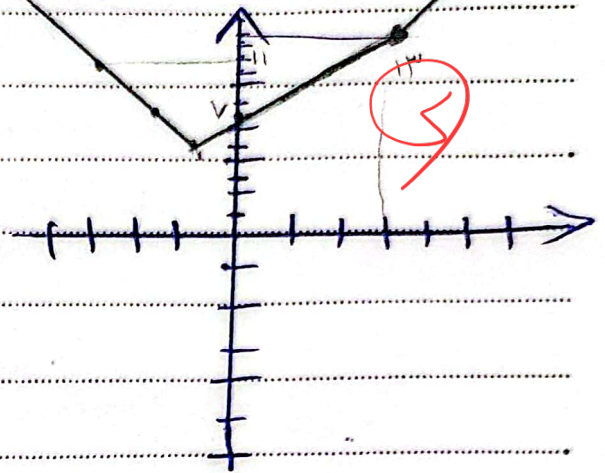
تابع $y = |x-2| + |2x+4|$ (به روش) چندضابطه‌ای کردن رسم کنید؟

$$\begin{cases} x > 2 & 4x+1 \\ -\frac{4}{3}x \leq x \leq 2 & 2x+7 \\ x < -\frac{4}{3} & -4x-1 \end{cases}$$

x	3	2
y	13	17

x	-1	2
y	5	13

x	-3	-2
y	11	7



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

$$\begin{cases} 3x & x > 2 \\ x+2 & -1 \leq x \leq 2 \\ -3x & x < -1 \end{cases}$$

$$\Rightarrow [3, +\infty) = R$$

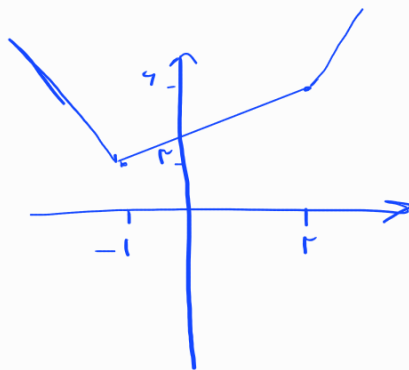
$$y = |2x-5| - |x+1|$$

① -1 R = [-2, +∞)

در نقطه گرفتن ابتدا تابع طراری یا آتش‌دهی نیست می‌دانیم
شما سبب متناهی دارد و کمی بگریزید می‌شود!

$$\begin{array}{c|c|c} -1 & & 2 \\ \hline -2x & x+2 & 2x \end{array}$$

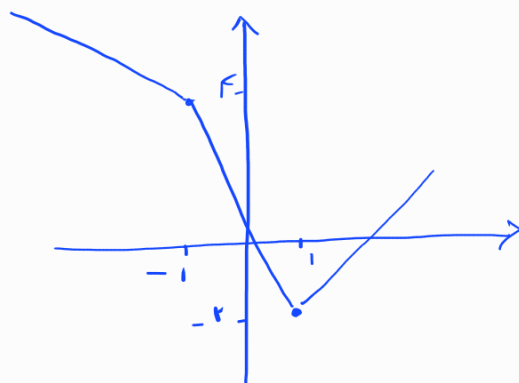
$$R = [2, +\infty)$$



الف)

$$\begin{array}{c|c|c} -1 & & 1 \\ \hline -x+2 & -2x+1 & x-2 \end{array}$$

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



ب)

ضایعه بندی در رسم نمودار