

نام و نام خانوادگی علی بابا پاسخنامه تشریحی تکلیف شماره کلاس دوازدهم A

$$\text{الف) } y = \frac{|x| + 1}{|x| - 2}$$

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

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

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

$$\frac{-\frac{1}{2}}{\frac{1}{4} - \frac{1}{4} +}$$

$$R_f = (-\infty, -1] \cup (1, \infty)$$

$$\text{ب) } y = \frac{x^2 + 1}{|x|} = |x| + \frac{1}{|x|}$$

$$\Rightarrow R_f = [2, \infty)$$

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

$$R_f = (-\infty, -9] \cup [-2, \infty)$$

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

$$x^2 + (2-y)x - 2-3y = 0 \Rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} \Rightarrow \Delta \geq 0$$

$$\Delta \geq 0 \Rightarrow b^2 - 4ac \geq 0$$

$$(2-y)^2 + 8 + 12y \geq 0 \Rightarrow \frac{-y-2}{4} - \frac{y}{4} +$$

$$y^2 + 8y + 12 \geq 0 \Rightarrow (y+2)(y+6) \geq 0$$

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$$f(x) = \frac{x^2 - x + \frac{1}{x}}{x^2 - x + 1} \sim \Delta \leq 0$$

$$\Rightarrow D_f = \mathbb{R}$$

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

$$(1-y)x^2 - (y-1)x + \frac{1}{x} - y$$

$$R_f = [0, 1)$$

$$\Delta \geq 0 \Rightarrow b^2 - 4ac = (y-1)^2 - 4(1-y)(\frac{1}{x} - y)$$

$$= y^2 - 2y + 1 - 4(\frac{1}{x} - y)(1-y)$$

$$= y^2 - 2y + 1 - 4(\frac{1}{x} - y)(1-y)$$

$$= y^2 - 2y + 1 - 4(\frac{1}{x} - y)(1-y)$$

$$y(-y+1) = \frac{0}{4} + \frac{1}{4} -$$

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$$\text{الف) } y = \sqrt{-x^2 + 8x - 1}$$

$$\frac{x}{y} = \frac{b}{a} = 2$$

$$\frac{y}{x} = \frac{a}{b} = \frac{1}{2}$$

$$\Rightarrow R_f = [0, \sqrt{3}]$$

$$\text{ب) } y = \sqrt{2x^2 - 12x}$$

$$x_{\min} = \frac{b}{2a} = 3$$

$$y_{\min} = \frac{\Delta}{4a} = -12 \Rightarrow R_f = [-12, \infty)$$

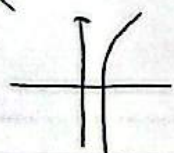
$$R_f = [-12, \infty)$$

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$$\text{الف) } y = \log(x^2 - x + 1)$$

$$R_f = (-\infty, \infty)$$

$$\log \mathbb{R}$$



$$\text{ب) } y = \log\left(\frac{x^2 + 1}{x}\right)$$

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

$$\frac{x^2 + 1}{x} > 0 \Rightarrow$$

$$R_f \Rightarrow [2, \infty)$$

$$\log 1 = 0$$

$$\Rightarrow R_f = [1, \infty)$$

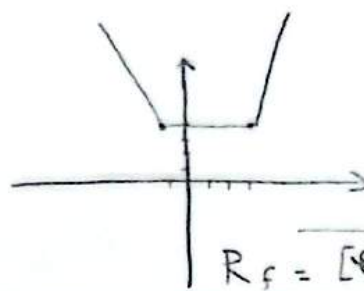
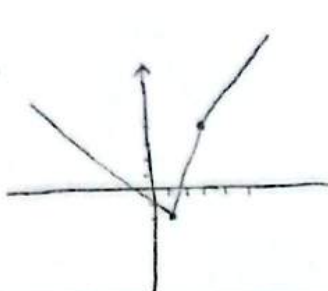
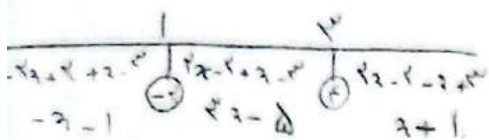
بدنه نهای

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$$الف) y = |x-2| - |x-3|$$

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

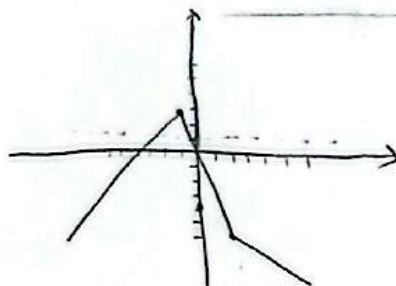
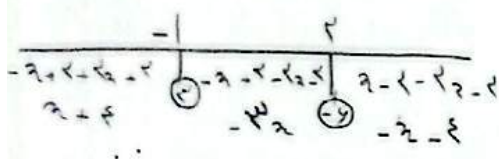


$$R_f = [-1, +\infty)$$

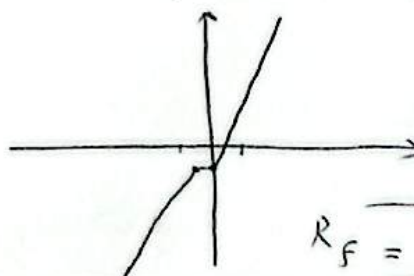
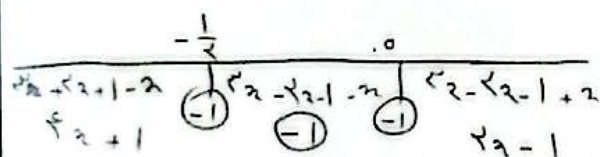
$$R_f = [1, +\infty)$$

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

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



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

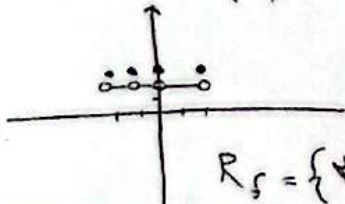


$$R_f = \mathbb{R}$$

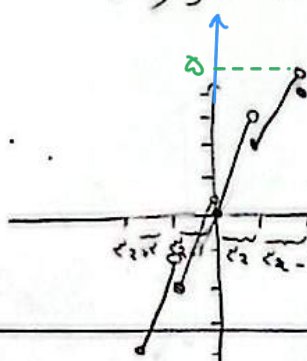
$$ج) y = [x] + [x-2] = [x] + [-x] + 2$$

$$\rightarrow y = 2x - [x]$$

$$[x] + [-x] = \begin{cases} n \in \mathbb{Z} = 0 \\ n \notin \mathbb{Z} = -1 \end{cases}$$



$$R_f = \{0, -1\}$$



$$R_y = [0, 1)$$

$$R_f = [0, 1)$$

$$د) y = \sin^2 x - \sin x + 1$$

$$\rightarrow y = \sin^2 x + \sin^2 x + 1$$

$$\rightarrow \begin{cases} \max \rightarrow 1 = 1 \\ \min \rightarrow -1 = -1 \\ -\frac{b}{2a} = \frac{1}{2} = \frac{1}{2} \end{cases}$$

$$\sin^2 x = t \quad t \in [0, 1]$$

$$\begin{cases} \max = 1 \\ \min = 0 \\ -\frac{b}{2a} = -\frac{1}{2} \end{cases}$$

$$R_f = [1, 2]$$