

Subject.

تالیف شماره ۵ (دوازدهم فصل A)

کلاس یادری

Day. Month. Year.

$$y = \frac{|x|+1}{|x|-2} \rightarrow |x| = \frac{2y+1}{y-1} \rightarrow \frac{2y+1}{y-1} \geq 0 \rightarrow \frac{-\frac{1}{2}}{+ \phi - \frac{1}{\phi} +} \quad (2)$$

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

$$y = \frac{x^2+1}{|x|} = |x| + \frac{1}{|x|} \xrightarrow{|x| > 0} |x| + \frac{1}{|x|} \geq 2 \rightarrow R = [2, +\infty)$$

$$y = \frac{x^2+2x-2}{x+2} \rightarrow yx + 2y = x^2+2x-2 \rightarrow x^2 + (2-y)x - 2 - 2y = 0 \quad (2)$$

$$\rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \Delta \geq 0 \rightarrow b^2 - 4ac \geq 0 \rightarrow (2-y)^2 - 4(-2-2y) \geq 0$$

$$\rightarrow y^2 + 4y + 12 \geq 0 \rightarrow (y+2)(y+6) \geq 0 \rightarrow \frac{-2}{+ \phi - \frac{-6}{\phi} +} \rightarrow R = (-\infty, -6] \cup [2, +\infty)$$

$$f(x) = \frac{x^2-x+\frac{1}{\varepsilon}}{x^2-x+1} \rightarrow \Delta < 0 \rightarrow \text{غیر مثبت ندارد} \rightarrow Df = \mathbb{R} \quad (2)$$

$$yx^2 - yx + y = x^2 - x + \frac{1}{\varepsilon} \rightarrow (1-y)x^2 + (y-1)x + \frac{1}{\varepsilon} - y = 0 \rightarrow x = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow \Delta \geq 0$$

$$\rightarrow (y-1)^2 - 4(1-y)(\frac{1}{\varepsilon} - y) \geq 0 \rightarrow -2y^2 + 2y \geq 0 \rightarrow -y(y-1) \geq 0 \rightarrow \frac{0}{- \phi + \frac{1}{\phi} -}$$

$$\leadsto a \neq 0 \Rightarrow 1-y \neq 0 \Rightarrow y \neq 1 \quad (2) \quad (1) [0, 1]$$

$$Rf = (1) \cap (2) = [0, 1]$$

$$y = \sqrt{-x^2 + \varepsilon x - 1} \rightarrow x_5 = \frac{-b}{2a} = 2 \rightarrow y_5 = 3 \xrightarrow{a < 0} R = \sqrt{(-\infty, 3]} = [0, 3] \quad (2)$$

$$y = \sqrt[3]{2x^2 - 11x} \rightarrow x_5 = \frac{-b}{2a} = 2 \rightarrow y_5 = -1 \xrightarrow{a > 0} R = \sqrt[3]{[-1, +\infty)} = [-1, +\infty)$$

$$y = \log_2(x^2 - x + 11) \rightarrow R = (-\infty, +\infty) \quad (2)$$

چون بیشترین توان عبارت فرد است مقدار تابع در بازه $(-\infty, +\infty)$ بازه $(-\infty, +\infty)$ را در بر می گیرد.

$$1) y = \log_y \left(\frac{x^2+1}{x} \right) \rightarrow \frac{x^2+1}{x} = x + \frac{1}{x} \rightarrow x > 0 \rightarrow x + \frac{1}{x} \in [2, +\infty) \text{ قبل قبول } \checkmark$$

$$\rightarrow x < 0 \rightarrow x + \frac{1}{x} \in (-\infty, -2] \text{ غير مقبول قبل } \times$$

$$\rightarrow R = \log_y [2, +\infty) = [1, +\infty)$$

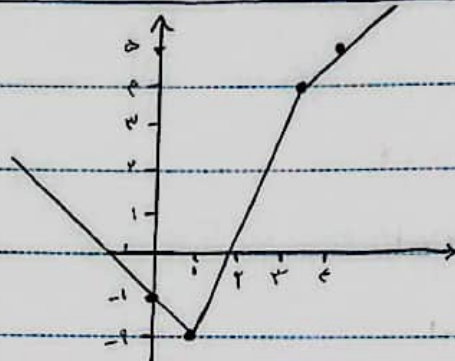
$$الف) y = |2x-2| - |x-3|$$

$$x=0 \rightarrow y=-1$$

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

$$x=3 \rightarrow y=1$$

$$x=6 \rightarrow y=2$$



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

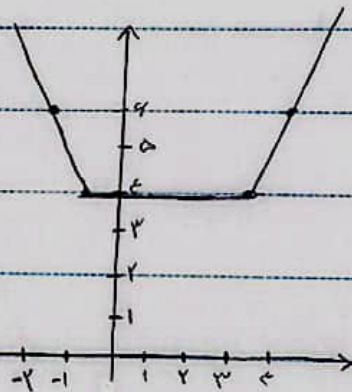
$$ب) y = |x-3| + |x+1|$$

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

$$x=-1 \rightarrow y=1$$

$$x=3 \rightarrow y=1$$

$$x=6 \rightarrow y=2$$



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

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

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

$$x \leq -3$$

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

$$x \geq -\frac{1}{3}$$

$$-\frac{1}{3} \leq x < 2$$

$$x-2-2x-2 \leq 1$$

$$x \geq -5$$

$$x \geq 2$$

$$\text{حساب جواب: } (-\infty, -3] \cup \left[-\frac{1}{3}, +\infty\right)$$

$$y = 3x - |2x+1| + |x|$$

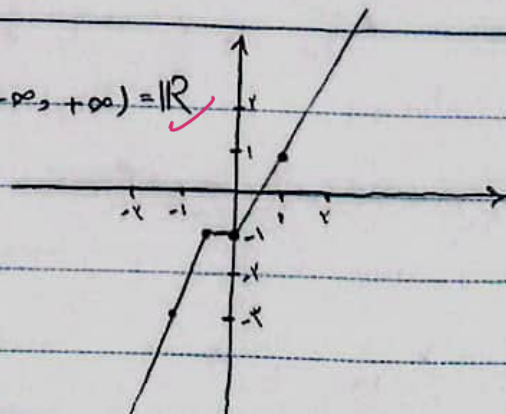
$$R = (-\infty, +\infty) = \mathbb{R}$$

$$x=-1 \rightarrow y=-3$$

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

$$x=0 \rightarrow y=-1$$

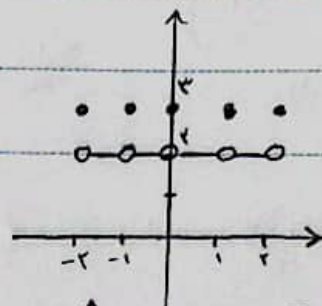
$$x=1 \rightarrow y=1$$



MR

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

$R = \{2, 3\}$



ب) $y = 3x - [x]$

$-2 \leq x < -1 \rightarrow y = 3x + 2$

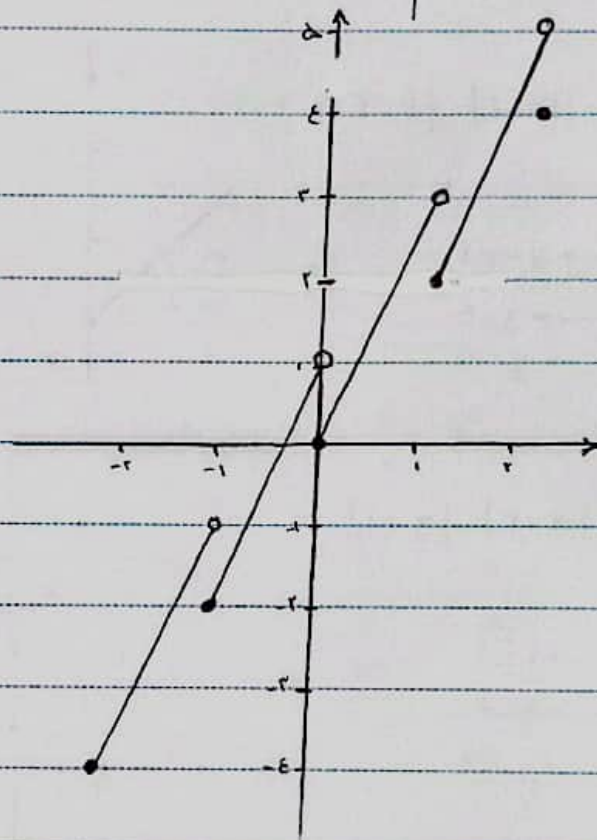
$-1 \leq x < 0 \rightarrow y = 3x + 1$

$0 \leq x < 1 \rightarrow y = 3x$

$1 \leq x < 2 \rightarrow y = 3x - 1$

$x = 2 \rightarrow y = 5$

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



الف) $y = \sin^2 x - \sin x + 1$

$\sin x \rightarrow \max = 1 \rightarrow y = 1$

$\min = -1 \rightarrow y = 3$

$\Rightarrow R = [-\frac{1}{e}, 3]$

$\frac{-b}{2a} = \frac{1}{2} \checkmark \rightarrow y = \frac{1}{e}$

ب) $\sin^2 x + \sin^2 x + 1$

$\sin^2 x \rightarrow \max = 1 \rightarrow y = 3$

$\min = 0 \rightarrow y = 1$

$\Rightarrow R = [1, 3]$

$\frac{-b}{2a} = \frac{-1}{2} \checkmark$