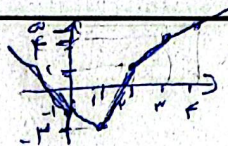


نام و نام خانوادگی یادداشت خاتمه پاسخنامه تشریحی تکلیف شماره کلاس (م. آزاد) تهران	
الف) $\frac{ x -2}{ x -2} + \frac{2}{ x -2} = 1 + \frac{2}{ x -2}$ $\frac{2}{ x -2}$ $R_y = \mathbb{R} \setminus \{2\}$ صفحه آخر... ب) $\frac{ x ^2}{ x } + \frac{1}{ x } = x + \frac{1}{ x } \rightarrow R = [2, \infty)$	۱
$y = \frac{x^2+2x-2-1+1}{x+2} = \frac{(x+2)(x-1)}{x+2} + \frac{1}{x+2} = x-1 + \frac{1}{x+2} \rightarrow (x+2 + \frac{1}{x+2}) - 2 = (\infty - 2) \cup [2, \infty)$ $R = (-\infty, -2] \cup [-2, \infty)$	۲
$f(x) = \frac{x+\frac{1}{x}}{x+1} = 1 - \frac{\frac{x}{x+1}}{x+1}$ $D_{f(x)} = \mathbb{R}$ $x = x^2 - x$ Δ منجم $\min = -\frac{1}{4}$ $x+1 \geq \frac{3}{4}$ $x \geq -\frac{1}{4}$ $f(\min) = \frac{1 - \frac{3}{4}}{\frac{3}{4}} = 0$ $f(\max) = (1 - \frac{0}{x+1}) = 1$ $R = [0, 1)$	۳
الف) $x_5 = \frac{-b}{a} = 2$ $\forall x_{\max} \in (-\infty, 2] \rightarrow R = [0, 2]$ ب) $\frac{-b}{a} = 2$ $-1 \rightarrow \min e$ $R = [-2, \infty)$	۴
الف) $\log R = \mathbb{R}$ ب) $\log x + \frac{1}{x} \rightarrow (\log x)_{x \rightarrow 0} \Rightarrow R_y = [1, \infty)$	۵

الف) $x \begin{array}{c|c|c|c|c} 0 & 1 & 2 & 3 & 4 \\ \hline y & -1 & 1 & 1 & 4 & 0 \end{array}$



$[-2, \infty) \subset \mathbb{R}$

٢)

ب) $\Rightarrow$ $R = [4, \infty)$

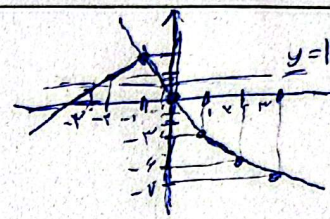
٤

ج) $x \begin{array}{c|c|c|c|c} -2 & -1 & 0 & 1 & 2 & 3 \\ \hline y & 2 & 3 & 0 & -3 & -2 & -5 \end{array}$

$R = (-\infty, -\frac{1}{3}] \cup [\frac{1}{3}, \infty)$

$(-\infty, -\frac{1}{3}] \cup [\frac{1}{3}, \infty)$

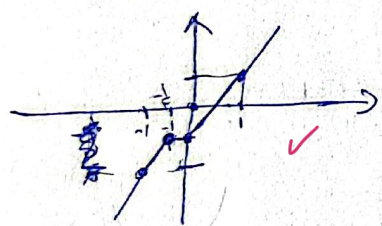
$x = \begin{cases} -\frac{1}{3} \\ \frac{1}{3} \end{cases}$



٢)

٧

$x \begin{array}{c|c|c|c} -1 & -\frac{1}{2} & 0 & 1 \\ \hline y & -2 & -4 & -1 & 1 \end{array}$



$\mathbb{R}$

(ج)

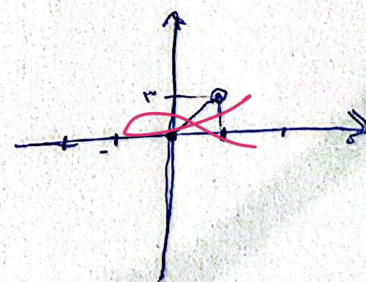
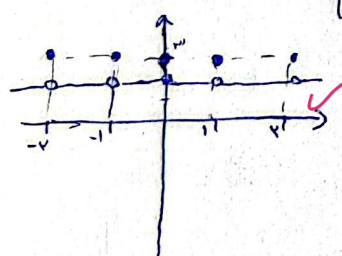
٢)

٨

الف) $[2] + [2] + 3$

$\Rightarrow M_R = [2]$

$R = \{2, 3\}$



١)

٩

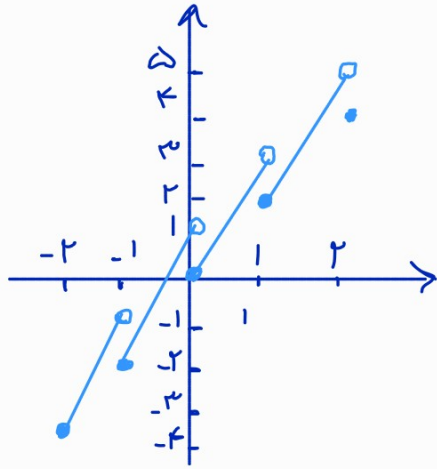
الف) $\sin^2 x - \sin x + 1$ $R = [\frac{3}{4}, 2]$

ب) $(\sin^2 x)^2 + \sin^2 x + 1$ $R = [1, 2]$

٢)

١٠

الف $\square = |x| \rightarrow \begin{cases} |x| = 0 \rightarrow y = -\frac{1}{2} \\ |x| = +\infty \rightarrow y = 1 \end{cases} \xrightarrow[\text{مفردته}]{\text{مخرج قيمته}} R_y = (-\infty, -\frac{1}{2}] \cup (1, +\infty) - 1$



$$R_y = [-4, \infty)$$

ب. 4