

تغییر متغیر تعریف نمودن مجموعه دامنه A

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

$\rightarrow y = \frac{x^2+1}{|x|}$ $\oplus$ $R = (0, +\infty)$

$y = \frac{x^2+2x-2}{x+2}$ $yx+2y = x^2+2x-2$ $x = \frac{y-2 \pm \sqrt{(2-y)^2-4(-2-2y)}}{2}$

$y^2+4y+4 \geq 0$ $(y+2)(y+2) \geq 0$ $R = (-\infty, -2] \cup [-2, +\infty)$

$f(x) = \frac{x^2-x+1/4}{x^2-x+1}$ $D = \mathbb{R}$ $f(x) \geq 0$ $R = [0, 1)$

$\frac{(x-\frac{1}{2})^2}{(x-\frac{1}{2})^2 + \frac{3}{4}} \rightarrow 0 \leq f(x) \leq 1$ $\hookrightarrow$ $f(x) = \frac{1}{2}$ $f(x) \neq \frac{1}{2}$ $f(x) = \frac{1}{2}$ $f(x) = \frac{1}{2}$

الف) $\sqrt{-x^2+4x-1} \rightarrow y = \sqrt{(-\infty, 2]} \Rightarrow R_y = [0, \sqrt{2}]$

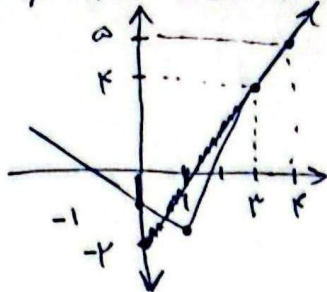
$\frac{-b}{2a} = \frac{-4}{-2} = 2$ $-4+8-1=3$

$\rightarrow y = \sqrt[3]{2x^2-11x} \quad \frac{+11}{2} = y \quad \sqrt[3]{2(x-\frac{11}{4})^2-19} \Rightarrow R = [-2, +\infty)$

$y = \sqrt{x^2-x+1/4}$ $R_y = \mathbb{R}$ $\rightarrow \int_r (\frac{x^2+1}{x}) \rightarrow x + \frac{1}{x} [2, +\infty)$

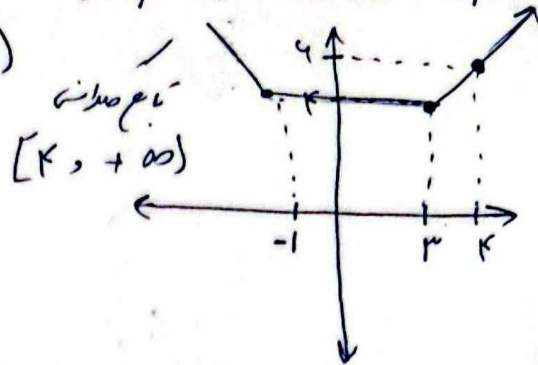
$\frac{1}{x} + x = 2$ $\int_r^2 = 1$ $R_2 = [1, +\infty)$ $\int_r^{+\infty} = +\infty$

الف) $y = |2x - 2| - |x - 2|$



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

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

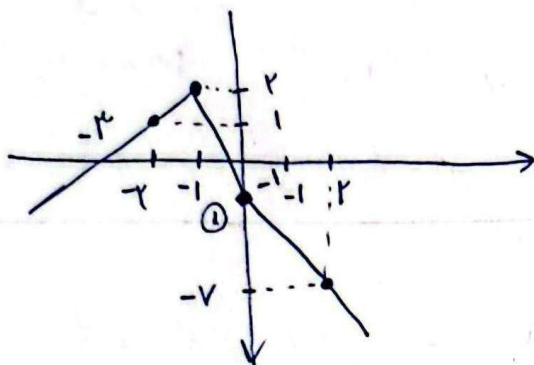


$|x - 2| - |2x + 2| \leq 1$

$|x - 2| - |2x + 2| - 1 \leq 0$

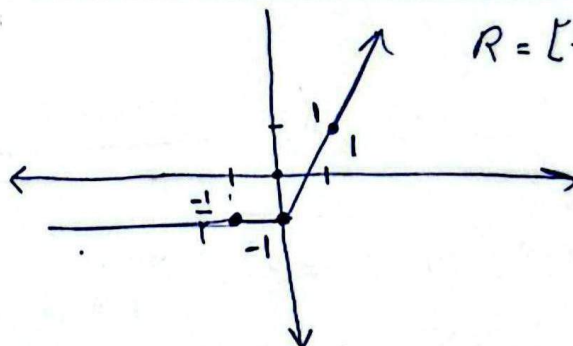
بحسب

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



$2 - x - 2x - 2 \leq 0 \rightarrow -1 \leq x \leq 0$ (بحسب 1)
 $-2x = +1 \rightarrow x = \frac{-1}{2}$

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



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

الف) $y = [x] + [2 - x]$

$a \leq x < a + 1 \rightarrow 2 - a \leq 2 - x < 2 - a$

$[2 - x] = 2 - a \Rightarrow [x] + [2 - x] = a + (2 - a) = 2$

$x + 2 - x = 2$

$R = \{2, 2\}$

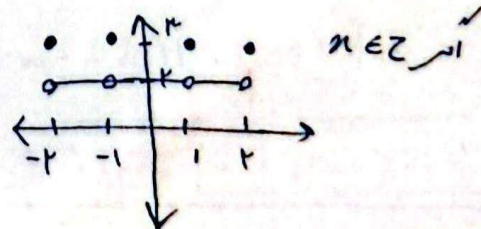
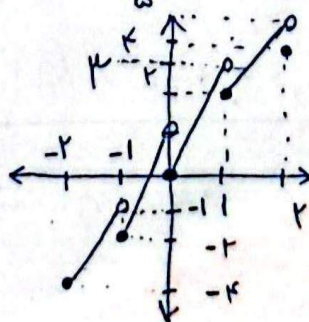
$\Rightarrow y = 2x - [x]$

$[-2, -1) \Rightarrow 2x + 2$

$[-1, 0) \Rightarrow 2x + 1$

$[0, 1) \Rightarrow 2x$

$[1, 2) \Rightarrow 2x - 1$



$R = \mathbb{R}$

$D = \mathbb{R}$

الف) $y = \sin^r x - \sin x + 1$ -10

$-1 \leq \sin x \leq 1$

- $\sin x = 1 \quad y = 1$
- $\sin x = -1 \quad y = r$
- $\sin x = \frac{-b}{ra} = \frac{+1}{r} \quad y = \frac{r}{r}$

$R = \left[\frac{r}{r}, r \right]$

$\Rightarrow y = \sin^r x + \sin^r x + 1$

$0 \leq \sin^r x \leq 1$

- $\sin x = 0 \quad y = 1$
- $\sin x = 1 \quad y = r$
- $\sin x = \frac{-1}{r} \quad y = \frac{r}{19}$

$R = [1, r]$