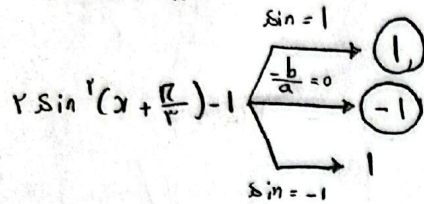


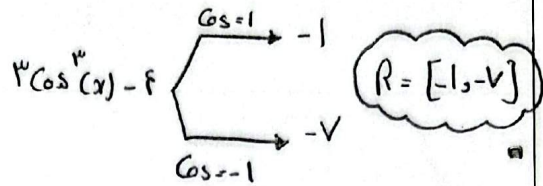
الف) $f(x) = 2 \sin^2(x + \frac{\pi}{3}) - 1$

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

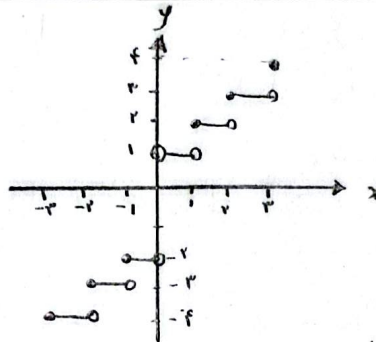
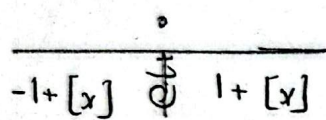


ب) $g(x) = 3 \cos^3(x) - 4$

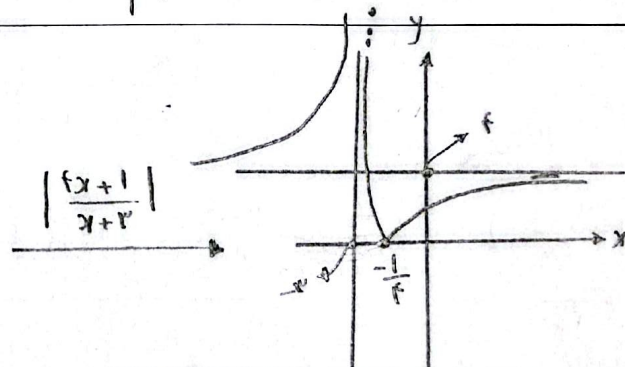
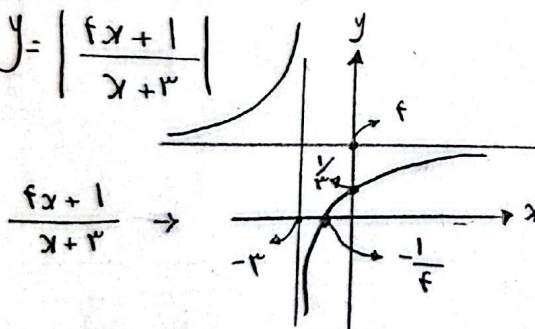
$-1 \leq \cos x \leq 1$



$y = \frac{x}{|x|} + [x]$

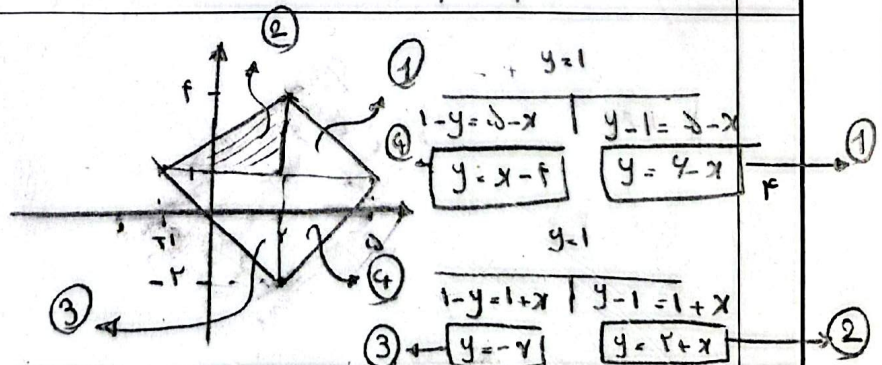
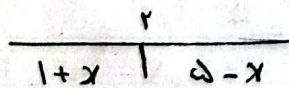


$y = \left| \frac{fx+1}{x+3} \right|$

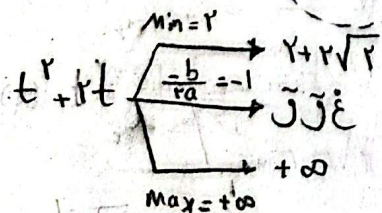


$y = |x-1| + |y-1| = 3$

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

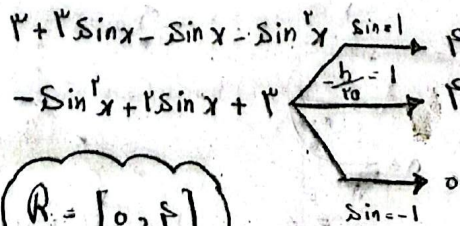


الف) $f(x) = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}}$



$R = [2, \infty)$

ب) $y = (3 - \sin x)(1 + \sin x)$



$R = [0, 4]$

$$f(x) = \frac{-1}{3}x + 1.$$

$$D_f = \{1, 2, 3, 4, 5, 6, 7, 8, 9\} \Rightarrow R_f = \left\{ \frac{29}{3}, \frac{21}{3}, 9, \frac{24}{3}, \frac{25}{3}, \dots, \frac{31}{3} \right\}$$

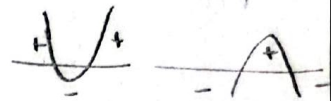
$\frac{225}{3} = 75 \mid = \text{مع}$

$$f(x) = \sqrt{ax^2 + bx + c}$$

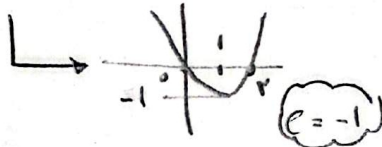
$$a=0, \begin{cases} 2b+c=0 \\ 3b+c=1 \end{cases} \Rightarrow \begin{cases} b=1 \\ c=-2 \end{cases}$$

• عبارت زیر را دیکال
عبارتی درجه 1 است
زیرا دامنه عبارت درجه 2 زیر را دیکال اینفورمیت!

$$g(x) = \sqrt{x^2 + 4} \Rightarrow \sqrt{[4, +\infty)} = [2, +\infty)$$



$$f(x) = \frac{x(x-2)(x+2)}{x+2} = x^2 - 2x \Rightarrow x^2 - 2x = 1 \Rightarrow (x-4)(x+2) = 0$$



$$\begin{cases} a = -2 \\ b = 4 \end{cases}$$

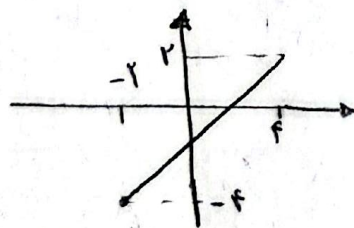
$$f\left(\frac{a+b}{rc}\right) = f(-1) = \frac{-1+4}{1} = 3$$

$$y = \sqrt[3]{x^3 + ax^2 + bx - 1} \xrightarrow{\text{خطی}} \sqrt[3]{(x-2)^3} = \sqrt{x^3 - 1 + 6x - 2x^2}$$

$\begin{matrix} b & a \end{matrix}$

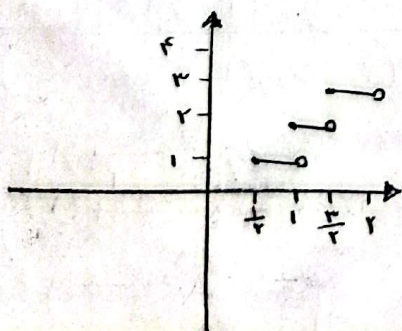
$$f(x) = x - 2$$

$$D_f = [-2, 4]$$



$$R = [-4, 2]$$

(*) به کمک بازه بنابر عدد گزار:



از 3 باره خوا
تسلیل شده