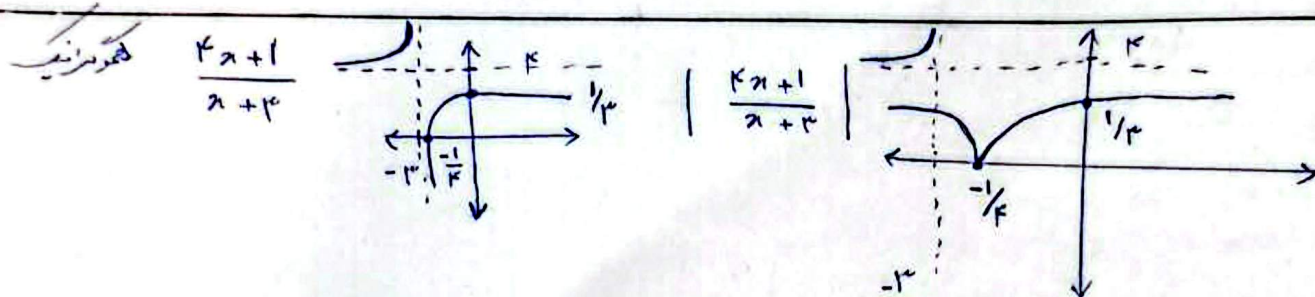
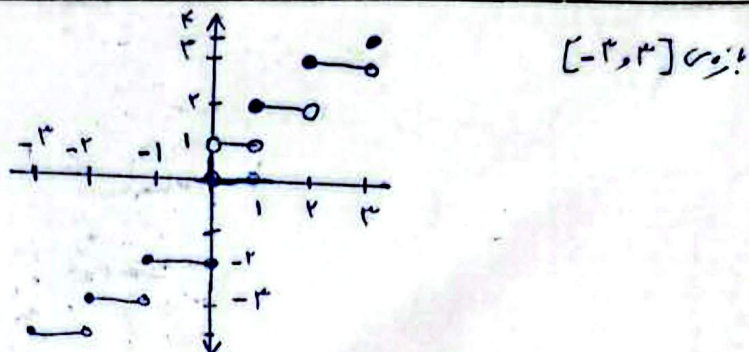


نام خانوادگی: غزل عباسی / ملا س: (درجه یکم) (A) تکلیف ۶

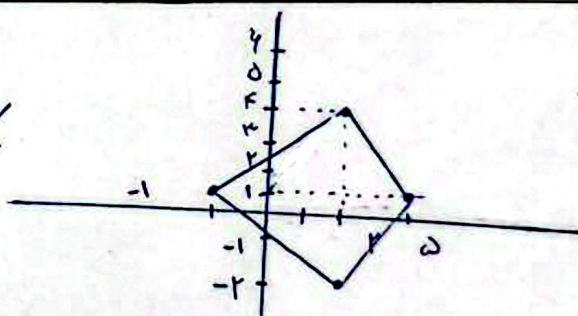
الف) $-1 \leq \sin x \leq 1 \Rightarrow 0 \leq \sin^2 x \leq 1 \Rightarrow -1 \leq f(x) \leq 1$
 ب) $-1 \leq \cos x \leq 1 \Rightarrow -1 \leq \cos^2 x \leq 1 \Rightarrow -1 \leq g(x) \leq 1$

$f(x) = \begin{cases} 1 + [x] & x \geq 0 \\ [x] & x \neq 0 \Rightarrow \text{در فاصله نیست} \\ -1 + [x] & x < 0 \end{cases}$



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

$y = \begin{cases} y \geq 1 & y = 2 - |x-1| \text{ I} \\ y < 1 & y = -2 + |x-1| \text{ II} \end{cases}$



الف) $x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}} \quad x + \frac{1}{x} \geq 0 \quad x > 0 \quad \min t = \sqrt{x} \Rightarrow f_{\min} = (\sqrt{x})^2 + 2\sqrt{x} = x + 2\sqrt{x}$
 $\sqrt{x + \frac{1}{x}} \geq \sqrt{x} \quad \sqrt{x + \frac{1}{x}} = t \quad t^2 + 2t \Rightarrow \frac{-b}{2a} = -1 \Rightarrow [2 + 2\sqrt{2}, +\infty)$

ب) $y = (2 - \sin x)(1 + \sin x) = -\sin^2 x + 2\sin x + 2$
 $\begin{cases} \rightarrow 1 : 2 \\ \rightarrow \frac{-b}{2a} : -1 \end{cases} \quad R = [-1, 2]$

$\begin{matrix} 1 \Rightarrow 9 \frac{r}{r} & 4 \Rightarrow 1 \\ 2 \Rightarrow 9 \frac{1}{r} & 5 \Rightarrow 5 \frac{r}{r} \\ 3 \Rightarrow 9 & 6 \Rightarrow 6 \frac{1}{r} \\ 4 \Rightarrow 16 \frac{r}{r} & 7 \Rightarrow 7 \frac{1}{r} \\ 5 \Rightarrow 16 \frac{1}{r} & 8 \Rightarrow 8 \end{matrix}$

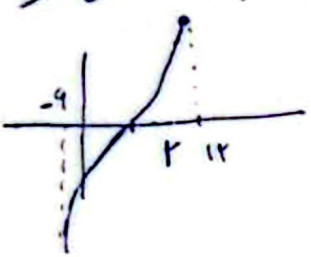
$9 \frac{r}{r} + 9 \frac{1}{r} + 9 + 16 \frac{r}{r} + 16 \frac{1}{r} + 16 + 7 \frac{r}{r} + 7 \frac{1}{r} + 7 = 10$

$f(x) = -\frac{1}{x} + 10$

$$\text{degit} \Rightarrow a=0 \quad f(x) = \sqrt{bx+c} \quad rb+c < 0 \quad rb = -c \quad rb + \cancel{-rb} = 1 \quad \begin{matrix} b=1 \\ c=-r \end{matrix}$$

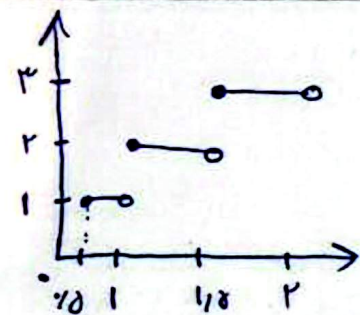
$$g(x) = \sqrt{x^r + r} \Rightarrow [r, +\infty) = R_g$$

دالة الجذر : $\sqrt[3]{(x-r)^r} = x-r \quad x^r - 9x^r + 12x - 1 \quad \begin{matrix} a = -9 \\ b = 12 \end{matrix} \quad D = [-9, 12]$



$x = -9 \Rightarrow -1$
 $x = 12 \Rightarrow 1$
 $R = [-1, 1]$

log: $\frac{1}{r} \text{ if } x < 1 \Rightarrow = 1$
 $1 \text{ if } x < 1/2 \Rightarrow = r$
 $1/2 \text{ if } x < r \Rightarrow = r$



log: $\frac{1}{r}$

$$f(x) = \frac{x^r - rx}{x+r} = \frac{x(x-r)(\cancel{x+r})}{\cancel{x+r} \rightarrow x \neq -r} = x^r - rx \quad \frac{-b}{ra} = \frac{r}{r} < 1 = c$$

$$x^r - rx = 1 \Rightarrow (x-r)(x+r) = 0 \quad x \neq r, -r \quad \begin{matrix} a = -r \\ b = r \end{matrix}$$

$$f\left(\frac{r-r}{r}\right) = f(1) = 1-r = -1$$