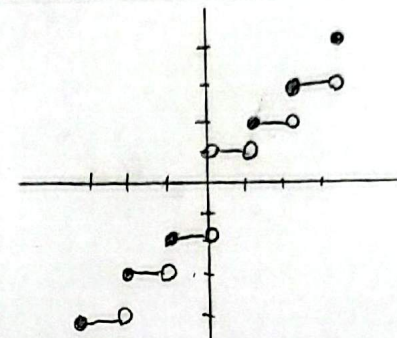
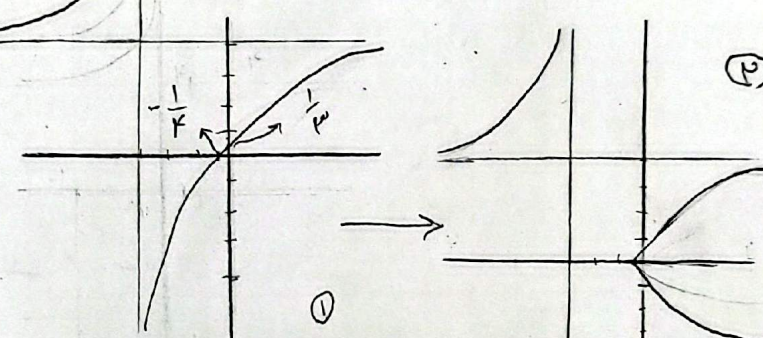
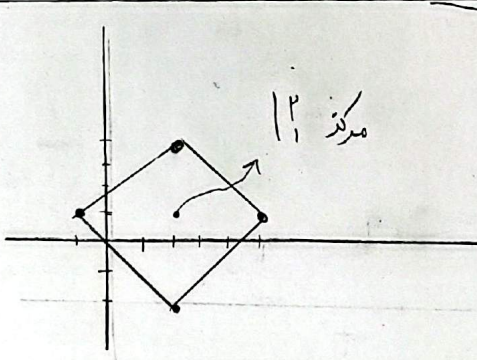


الف) $f(x) = 2 \sin^2(x + \frac{\pi}{3}) - 1$ $a \sin^2 + b \sin + c$ $\begin{cases} \min = -1 \rightarrow 1 \\ \max = 1 \rightarrow 1 \\ -\frac{b}{2a} = 0 \rightarrow -1 \end{cases}$ $RP = [-1, 1]$	ب) $g(x) = 2 \cos^3 x - 4$ $\cos^3 x \begin{cases} \min = -1 \rightarrow -7 \\ \max = 1 \rightarrow -1 \end{cases}$ $Rg = [-7, -1]$	۱
$\frac{x}{ x } + [x]$ $\begin{matrix} x & y \\ [-3, -2) \rightarrow -4 & [1, 2) \rightarrow 2 \\ [-2, -1) \rightarrow -3 & [2, 3) \rightarrow 3 \\ [-1, 0) \rightarrow -2 & \{3\} \rightarrow 4 \\ (0, 1) \rightarrow 1 \end{matrix}$		۲
$y = \left \frac{4x+1}{x+3} \right$ $\frac{4x+1}{x+3}$ مماس قائم = $\frac{1}{-4} = -4$ مماس افقی = $\frac{a}{c} = 4$ $ad - bc = 12 - 1 = 11 > 0$		۳
$x-2 + y-1 = 3$ $\begin{cases} -1 \leq x < 2 \rightarrow -x \\ -1 \leq x < 2 \rightarrow x+2 \\ 2 \leq x \leq 5 \rightarrow x-4 \\ 2 \leq x \leq 5 \rightarrow 4-x \end{cases}$	 مرکز ۲، ۱	۴
الف) $x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}} =$ $(\sqrt{x + \frac{1}{x}} + 1)^2 - 1 \rightarrow R = [0, +\infty)$ $\min = 1$ $\max = \infty$	ب) $(3 - \sin x)(1 + \sin x) =$ $-\sin^2 x + 4 \sin x + 3$ $\sin x \begin{cases} -1 \rightarrow 0 \\ 1 \rightarrow 4 \\ -\frac{b}{2a} = 1 \end{cases}$ $R = [0, 4]$	۵

$$f(n) = -\frac{1}{p}n + 10 \rightarrow f(1) + f(2) + \dots + f(9) = 9(10) - \frac{1+2+\dots+9}{p}$$

$$Df = \{1, 2, 3, \dots, 9\} = 90 - 10 = 80 \quad \text{V.O.}$$

$\frac{1+2+\dots+9}{p} = 10$

$$Df = [1, +\infty) \rightarrow f(n) = \sqrt{n} \rightarrow \frac{a=0}{b>0}$$

$$f(1)=0 \rightarrow pb+c=0$$

$$f(2)=1 \rightarrow 2p+c=1$$

$$\left. \begin{array}{l} pb+c=0 \\ 2p+c=1 \end{array} \right\} \begin{array}{l} b=1 \\ c=-1 \end{array}$$

$$g(n) = \sqrt{n^2 + 4}$$

$$Rg = \sqrt{[1, +\infty)} = [2, +\infty)$$

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

$$Df = \mathbb{R} - \{a, b\}$$

$$f\left(\frac{a+b}{2}\right) =$$

$$f(-1) =$$

$$L = x^2 - 2x$$

$$x_s = 1, y_s = -1$$

$$Rf = [1, +\infty) - \{1\}$$

$$1 - 2(-1) = 3$$

$$x^2 - 2x = 1$$

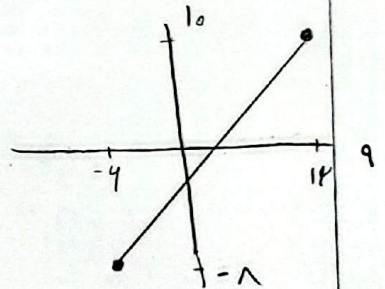
$$x^2 - 2x - 1 = 0 \rightarrow (x+1)(x-1) = 0 \rightarrow \begin{cases} x = -1 \\ x = 1 \end{cases} \rightarrow b = 1$$

$$y = \sqrt{x^2 + ax + b} - 1 = \sqrt{(x-1)^2} = x - 1$$

$$x^2 - 4x^2 + 12x - 1 \rightarrow \begin{cases} a = -4 \\ b = 12 \end{cases}$$

$$D = [-4, 12]$$

$$R = [-1, 10]$$



$$[n] + [n + \frac{1}{p}]$$

$$[\frac{1}{p}, 1) \rightarrow 0 + 1 = 1$$

$$[1, 1 + \frac{1}{p}) \rightarrow 1 + 1 = 2$$

$$[1 + \frac{1}{p}, 2) \rightarrow 1 + 2 = 3$$

