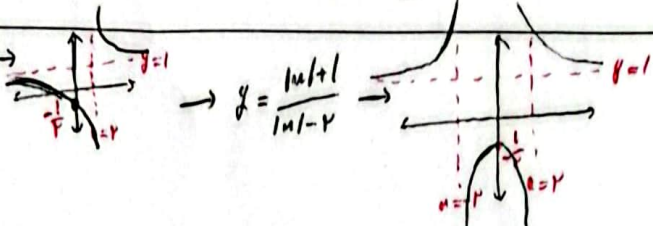
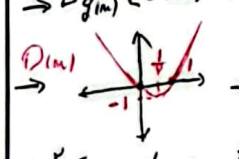
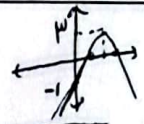
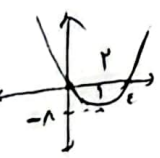


نام و نام خانوادگی: شماره: کلاس: (دوازدهم) B

الف) $y = \frac{ x +1}{ x -2} \rightarrow y = \frac{x+1}{x-2} \rightarrow y=1$  $\rightarrow R_f = (-\infty, -\frac{1}{2}] \cup (1, +\infty)$ ب) $y = \frac{x^2+1}{ x } \rightarrow y = \frac{ x ^2+1}{ x } \rightarrow y = x + \frac{1}{ x } \rightarrow x = a \rightarrow a > 0 \rightarrow R_f = [2, +\infty)$	1
$y = \frac{ax^2+bx+c}{dx+e} \rightarrow yx+xy = ax^2+bx+c \rightarrow ax^2+bx-c-yx=0 \rightarrow ax^2+(b-y)x-(c+ey)=0$ $\rightarrow \Delta = \frac{b^2-4ac}{4a} \rightarrow \Delta = \frac{(b-y)^2-4a(c+ey)}{4a} \rightarrow \Delta \geq 0 \rightarrow (b-y)^2-4a(c+ey) \geq 0$ $\rightarrow y^2+4ay+14 \geq 0 \rightarrow (y+2)(y+4) \geq 0 \rightarrow \frac{-4}{+1} \frac{-2}{-1} \rightarrow R_f = (-\infty, -4] \cup [-2, +\infty)$	2
$f(x) = \frac{ax^2-bx+c}{dx+e} \rightarrow \frac{f}{f} \times \frac{ax^2-bx+c}{dx+e} \rightarrow f(x) = \frac{ax^2-bx+c}{dx+e} \rightarrow ax^2-bx+c \neq 0 \rightarrow f(x)$ $\rightarrow \Delta_{g(x)} < 0 \rightarrow D_{f(x)} = \mathbb{R} \rightarrow f(x) = \frac{ax^2-bx+c}{dx+e} \rightarrow \frac{(ax^2-bx+c)+1}{(dx+e)+1} \rightarrow D_{f(x)} = ax^2-bx+c$  $\rightarrow f(x) = 0$ با توجه به min مقدار تابع $D_{f(x)}$ می توان دریافت که کمترین مقدار $D_{f(x)}$ می باشد اگر $\rightarrow R_{f(x)} = (0, 1)$ $ax^2-bx+c = t \rightarrow \frac{t+1}{t+e} \rightarrow a = \infty \rightarrow t+1 (t+e \rightarrow \max f(x)) = \frac{\infty}{\infty} \rightarrow R_{f(x)} = (0, 1)$	3
الف) $y = \frac{x^2-2x+1}{x^2-2x+1} \rightarrow y = \frac{(x-1)^2}{(x-1)^2} \rightarrow y=1$  $\rightarrow R_f = [0, \sqrt{e}]$ ب) $y = \frac{x^2-2x+1}{x^2-2x+1} \rightarrow y = \frac{(x-1)^2}{(x-1)^2} \rightarrow y=1$  $\rightarrow R_f = [-2, +\infty)$	4
الف) $y = \frac{x^2-2x+1}{x^2-2x+1} \rightarrow R_f = (-\infty, +\infty)$ ب) $y = \frac{x^2+1}{x^2} \rightarrow y = 1 + \frac{1}{x^2} \rightarrow x + \frac{1}{x} \geq 2$ or $x + \frac{1}{x} \leq -2 \rightarrow \frac{x^2+1}{x^2} \geq 1$ $\rightarrow R_f = (1, +\infty)$	5

الف) $y = x-2 - x-3$ $\rightarrow \begin{cases} x+1 & x \geq 3 \\ x-2 & 2 < x < 3 \\ -x-1 & x \leq 2 \end{cases} \rightarrow R_F = [-2, +\infty)$ ب) $y = x-3 + x+1$ $\rightarrow R_F = [2, +\infty)$	6
$x-2 - x+2 \leq 1 \rightarrow$ $\begin{matrix} x+2 \leq 1 & -x-2 \leq 1 & -x-2 \leq 1 \\ \rightarrow x \leq -3 & x \geq -1 & x \geq -2 \end{matrix} \rightarrow R_F = (-\infty, -1] \cup [-\frac{1}{2}, +\infty)$ $y=1$	7
$y = 2 x-1 + x+1 \rightarrow R_F = \mathbb{R}$	8
الف) $y = [x] + [3-x] \rightarrow y = [x] + [-x] + 3$ $\rightarrow R_F = \{1, 3\} \rightarrow \begin{cases} x \in \mathbb{Z} \rightarrow 3 \\ x \notin \mathbb{Z} \rightarrow 1 \end{cases}$ ب) $y = 2[x] \rightarrow R_F = [-1, 1] - \{-2, -1, 3\}$	9
الف) $y = \sin^2 x - \sin x + 1 \rightarrow \sin x = 1 \rightarrow y = 1 \quad \sin x = -1 \rightarrow y = 1 \quad \sin x = 0 \rightarrow y = 1$ $\sin x = -\frac{1}{2} \rightarrow y = \frac{1}{4} \rightarrow R_F = [\frac{1}{4}, 1]$ ب) $y = \sin^2 x + \sin x + 1 \rightarrow \sin^2 x = 0 \rightarrow y = 1 \quad \sin^2 x = 1 \rightarrow y = 0 \rightarrow \sin x = -\frac{1}{2}$ $\rightarrow \sin x = -\frac{1}{2} \rightarrow y = 0 \rightarrow R_F = [0, 1]$	10