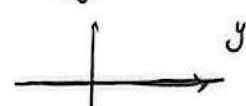
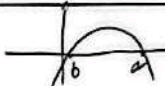


الف) تابع است. $(x, y) \rightarrow x = x \rightarrow y_1 = y_2 \rightarrow y_1^2 = y_2^2 \rightarrow y_1 = y_2$ ب)  تابع $y=0$ است. ج) $x+y = 2\sqrt{xy} \rightarrow x^2 + y^2 + 2xy = 4xy \rightarrow (x-y)^2 = 0 \rightarrow x-y = 0$ تابع است د) $y^2 \ominus y$ تابع نیست.	۱
$\begin{cases} 2x^2 - b & x \geq 3 \\ 2x^2 - b & x \leq -1 \\ a + 2x & -3 \leq x \leq -1 \end{cases}$ $x = -1 \rightarrow 2(-1)^2 - b = 2 - b$ $a + 2(-1) = a - 2$ $2 - b = a - 2 \rightarrow a + b = 4$	۲
$a - bx - x^2 \geq 0$ $[b, a]$ $x = b \rightarrow a - b^2 - b^2 = a - 2b^2$ $x = a \rightarrow a - ab - a^2$ $a - bx - x^2 = -x^2 - bx - a$ $\Delta = -b = a + b \rightarrow a = 2b$ $P = a = ab \xrightarrow{a \neq 0} b = 1 \rightarrow a = 2$ $a + b = 2 + 1 = 3$  $\Delta > 0 \rightarrow b^2 + 4a > 0$	۳
$ax^2 + bx + c > 0$ $\begin{matrix} + & 0 & - \end{matrix} \rightarrow$ تابع دخی $\begin{matrix} a = 0 \\ b < 0 \end{matrix}$ $4a^2 + 2b + c = 0 \rightarrow c = -2b$ $2a + c - 3 b = 0 \rightarrow 2b + 3b = b$ $\frac{b}{b} = 1$	۴
الف) $x - [x] \neq 0 \rightarrow x \neq [x] \rightarrow x \notin \mathbb{Z}$ $\mathbb{R} - \mathbb{Z} = D_f$ ب) $x \geq 0 \rightarrow D_f = [0, +\infty)$	۵

الف) $\forall x-1 > 0 \rightarrow x > \frac{1}{\forall}$ $x > 0$ $x \neq 1$ $\log_{\forall} x-1 \geq 0 \rightarrow \begin{cases} x \geq 1 & \forall x-1 \geq 1 \rightarrow x \geq \frac{\forall}{\forall-1} \rightarrow x \geq 1 \\ 0 < x < 1 & \forall x-1 \leq 1 \rightarrow x \leq \frac{\forall}{\forall-1} \rightarrow 0 < x \leq \frac{\forall}{\forall-1} \end{cases}$ ب) $\sqrt{ x } - x + \forall \neq 0 \rightarrow -(x - \sqrt{ x } - \forall) = -(\sqrt{ x } - \forall)(\sqrt{ x } + \forall) \neq 0$ $\sqrt{ x } \neq \forall \rightarrow x \neq \pm \forall^2$ $\sqrt{ x } \neq -\forall$ $x \geq 0 \rightarrow \mathbb{R}$ $\frac{1}{-(x - \forall)(\sqrt{ x } + \forall)} > 0 \rightarrow (x - \forall)(\sqrt{ x } + \forall) < 0$ $\frac{-\forall}{+} \frac{+\forall}{+} \frac{+}{+} = \frac{+}{+}$ $\boxed{(-\forall^2, \forall^2) = D_f}$	$D_f = (\frac{1}{\forall}, \frac{\forall}{\forall-1}] \cup (1, +\infty)$ 6
$\frac{\forall x + \forall}{x + b} + a \geq 0 \rightarrow \frac{(a+\forall)x + \forall + ab}{x + b} \geq 0 \rightarrow \begin{matrix} x \neq -b \\ y \neq a + \forall \end{matrix}$ $\frac{\forall x + \forall}{x + b} \geq -a$ $x \in (\forall, +\infty)$ $x \neq \forall \rightarrow \forall = -b \rightarrow \boxed{b = -\forall}$	7
$f(x) \begin{cases} \forall x - 1 & x \geq \Delta \\ \forall x + \forall & x < \Delta \end{cases}$ $f(x) - x + 1 \geq 0 \rightarrow f(x) \geq x - 1$ $\begin{matrix} x \geq \Delta & \forall x - 1 \geq x - 1 \rightarrow x \geq 0 \\ x < \Delta & \forall x + \forall \geq x - 1 \rightarrow \forall x \geq -\forall \rightarrow x \geq -\frac{\forall}{\forall-1} \end{matrix}$ $(0, +\infty) \cap [\Delta, +\infty) = [\Delta, +\infty)$ $(-\infty, \Delta) \cap [-\frac{\forall}{\forall-1}, +\infty) = [-\frac{\forall}{\forall-1}, \Delta)$ $\boxed{D_g = [-\frac{\forall}{\forall-1}, +\infty)}$	8
$y = \frac{\forall(1x^2 + \forall x^2 + \forall x + 1)}{(\forall x + 1)^2} = \frac{\forall(\forall x + 1)^2}{(\forall x + 1)^2} = \frac{\forall}{\forall x + 1} \quad x \neq \{-\frac{1}{\forall}\}$ $\frac{-\frac{1}{\forall}}{-\forall^2 +}$ $\boxed{D_f = \mathbb{R} - \{-\frac{1}{\forall}\}}$	9
$\forall x - a > 0 \rightarrow x > \frac{a}{\forall}$ $1 - \log(\forall x - a) \geq 0 \rightarrow 1 \geq \log(\forall x - a) \rightarrow x \leq \frac{1+a}{\forall}$ $\frac{1+a}{\forall} - \frac{a}{\forall} = \frac{b}{\forall} = \Delta$	10