

الف) $\frac{x+3}{(x-1)(x+3)(x-\frac{1}{4})}$	$D = \mathbb{R} - \{-3, \frac{1}{4}, 1\}$	۱
ب) $= \frac{x+3}{(x+1)(x+3)(x+\frac{1}{4})}$	$D = \mathbb{R} - \{-3, -1, -\frac{1}{4}\}$	
الف) $\frac{x+3}{(x-1)(x^2-x+1)}$ $\Delta < 0 \Rightarrow$ همیشه مثبت	$D = \mathbb{R} - \{1\}$	۲
ب) $\sqrt{\frac{x+3}{(x-1)(x^2-x+1)}} \Rightarrow \frac{x+3}{(x-1)(x^2-x+1)} \geq 0$	$D = (-\infty, -3] \cup (1, +\infty)$	
$f(x) = \begin{cases} (x-2)(x-2) & x \geq 1 \\ x(x+3) & x < 1 \end{cases}$ خرج مادامه اولی	$\begin{cases} x^2 - 4x + 4 - 2x + 2 = x^2 - 6x + 6 = (x-2)(x-3) \\ x^2 + 3x = x(x+3) \end{cases}$	۳
$D = \mathbb{R} - \{-3, 0, 2, 3\}$		
الف) $ 2x+1 - x+3 \leq 0$ $ 2x+1 = x+3 $ $4x^2 + 1 + 4x = x^2 + 9 + 6x$ $3x^2 - 2x - 8 = 0$ $(x-2)(x + \frac{4}{3}) = 0$	ب) $ 2x+1 - x+3 \geq 0$ $(x-2)(x + \frac{4}{3}) \geq 0$ $\frac{x}{-2} \quad \frac{-4}{3} \quad 2$ $D = (-\infty, -\frac{4}{3}] \cup [2, +\infty)$	۴
$D = \mathbb{R} - \{-\frac{4}{3}, 2\}$		
الف) $x > 0$ $1 - \log_3 x > 0$ $x < 3$ $\log_3 x < 1$	$\Rightarrow D = (0, 3)$	۵
ب) $x > 0$ $1 - \log_{\frac{1}{3}} x > 0$ $\log_{\frac{1}{3}} x < 1$	$\Rightarrow D = (\frac{1}{3}, +\infty)$	

$x-1 > 0$ $x > \frac{1}{2}$ $\textcircled{1}$	$\log_{\omega}^{x-1} > 0$ $x-1 > 1$ $x > 2$ $x > 1$ $\textcircled{2}$	$\log_{\frac{1}{2}}^{\log_{\omega}^{x-1}} \geq 0$ $\log_{\frac{1}{2}}^{x-1} \leq 1$ $x-1 \leq \frac{1}{\frac{1}{2}}$ $x \leq 2$ $x \leq 2$ $\textcircled{3}$	$\textcircled{1}, \textcircled{2}, \textcircled{3} \Rightarrow D = (1, 2]$	6
الف) $\cos x + 1 > 0$ $\cos x > -\frac{1}{2}$	$D = \{x \mid x \in [0, \frac{2\pi}{3}) \cup (\frac{4\pi}{3}, 2\pi]\}$	$\log(\frac{x-1}{x+1}) > 0$ $\frac{x-1}{x+1} > 1$ $\frac{x-1-x-1}{x+1} > 0$	$\frac{-2}{x+1} > 0$ $x > -1$ $D = [1, +\infty)$	7
$a + 2 = 0$ $a = -2$	$\Rightarrow f(x) = \sqrt{-2x + b}$ $-2(2) + b = 0$ $b = 4$			8
$\Delta \leq 0$ ✓ $a > 0$ ✓ $4 - 4(1 - m^2) \leq 0$ $1 - 1 + m^2 \leq 0$ $m^2 \leq 1$	$m \in [-1, 1] \Rightarrow 1 - (-1) = 2$			9
$x^2 > 0$ $x^2 \leq 4$ $-2 \leq x \leq 2$	$[x] + [-x] + 1 \neq 0$ $[x] + [-x] = -1$ $x \in (0, 1) \text{ با } 2$	$D = [-2, 2] \cap ((-\infty, 0] \cup [1, +\infty)) = [-2, 0] \cup [1, 2]$	$-2, -1, 0, 1, 2 \leq \text{اعداد صحيح}$ اعداد صحيح	10