

$x = 2y - 1 \rightarrow y = \frac{x+1}{2} \rightarrow x \geq -1$ $x = -y^2 \Rightarrow y = \sqrt{-x} \rightarrow x \leq 0$

$y = \begin{cases} \frac{x+1}{2} & x \geq -1 \\ \sqrt{-x} & x < -1 \end{cases}$ تابع است ✓

$f(x-2)$

	-4	-2	0	2	4	6
x	-	-	0	+	+	+
$f(x)$	-	0	+	+	0	+
$f(x-2)$	-	-	0	+	+	0
p	-	+	0	-	+	-

فقط حواصت باشد که $x=4$ در دایره است و $x=4$ در دایره نیست $f(x-2)$ نیست که در بازه است آفده نیست

$D = [-4, -2] \cup [0, 2] \cup [4, +\infty)$ ✓

الف) $x^2 - 4x \neq 0 \rightarrow x^2(x-4) \neq 0 \rightarrow R - \{0, 2, 4\}$ ✓

ب) $2x^2 - 3x + 2 \rightarrow \Delta = -7 \rightarrow$ همیشه مثبت $\rightarrow$
 $\rightarrow D = (-2, 0) \cup (2, +\infty)$ ✓

الف) $x^2 \rightarrow t \rightarrow t^2 - 2t - 1 \rightarrow (t-1)(t+1) \rightarrow t = 1, -1 \rightarrow x = 2, -2 \rightarrow$
 $D = (-2, +\infty) - \{2\}$ ✓

ب) $2 - 2[x] \neq 0 \rightarrow [x] \neq 1 \rightarrow 2 \leq -2x < 3 \rightarrow -2 \geq x > -3 \rightarrow D = (-\infty, -3] \cup (-2, +\infty)$ ✓

الف) $|x| + x > 0 \xrightarrow{x \leq 0} -x + x = 0 \rightarrow x > 0, x(x-1) \geq 0 \xrightarrow{x > 0} x \geq 1 \rightarrow D = [1, +\infty)$ ✓

ب) $|x-2| - x^2 \geq 0 \rightarrow x \geq 2 \rightarrow x-2-x^2 \geq 0 \rightarrow x^2 - x + 2 \leq 0 \rightarrow \Delta = -7 \rightarrow$ همیشه مثبت $x < 2 \rightarrow 2-x-x^2 \geq 0$

$x^2 + x - 2 \leq 0 \rightarrow (x+2)(x-1) \leq 0 \rightarrow -2 \leq x \leq 1 \rightarrow |x| - 1 \neq 0 \rightarrow x \neq -1, 1 \rightarrow D = [-2, -1) \cup (-1, 1)$ ✓

a) $(x-2)[x-2] \geq 0 \xrightarrow{A} x-2 \geq 0 \rightarrow [x-2] \geq 0, \xrightarrow{B} x-2 < 0 \rightarrow [x-2] \leq -1 \rightarrow D = \mathbb{R} \checkmark$ b) $x-1 [x-2] \geq 0 \rightarrow x-1 \geq 0 \xrightarrow{C} [x-2] \geq 0 \rightarrow x-2 \geq 0 \rightarrow x \geq 2 \rightarrow D = \{1\} \cup [2, +\infty) \checkmark$	r 6
$x-2 -1 = k \xrightarrow{k=1} x-2 -1=1 \rightarrow x-2 =2 \rightarrow x=0, 4 \rightarrow x-2 =0 \rightarrow x=2 \rightarrow k=1 \checkmark$	r 7
$x \neq 1, -1, -2 \rightarrow n=3 \checkmark \rightarrow x^2-4x+9 \rightarrow \Delta = 16-36 = -20 \rightarrow (x-2)^2 \rightarrow \text{مربع كامل} \checkmark$	r 8
$f_{x+1} g_{\frac{1}{x}} \rightarrow x > 0, x \neq 1 - x > -1, x \neq 0, g_{\frac{1}{x}} > 0 \rightarrow \frac{g_{\frac{1}{x}}}{g_x} > 0 \rightarrow g_{\frac{1}{x}} < 0 \rightarrow g_x < 0$ $\downarrow$ $0 < x < 1$ $D = (0, 1) \checkmark$	r 9
$-\omega \leq x^2-1 \leq \omega \rightarrow -\omega \leq x^2-1 \rightarrow -\varepsilon \leq x^2-1 \checkmark \rightarrow x^2-1 \leq \varepsilon \rightarrow x^2 \leq \varepsilon+1 \rightarrow x \leq \frac{\varepsilon}{2} \rightarrow \frac{\varepsilon}{4} \leq x \leq \frac{\varepsilon}{2}$ $D = \left[\frac{-\sqrt{\varepsilon}}{2}, \frac{\sqrt{\varepsilon}}{2} \right] \checkmark$	r 10