

$$\text{الف) } g^3 = 2x^2 + 2x - 1$$

$$\left. \begin{aligned} g_1^3 &= 2x^2 + 2x - 1 \\ g_2^3 &= 2x^2 + 2x - 1 \end{aligned} \right\} \Rightarrow g_1^3 = g_2^3 \Rightarrow g_1 = g_2 \quad \checkmark \text{ تابع است}$$

①

②

$$\Rightarrow \cos y = \cos x \Rightarrow x = \frac{\pi}{2} \Rightarrow \frac{\pi}{2} \cos y = 0 \Rightarrow \cos y = 0 \Rightarrow y = \left\{ k\pi + \frac{\pi}{2} \right\}$$

مقابلہ نقش - لاہوتی $\checkmark$

$$\text{ج) } \frac{x+y}{2} = \sqrt{xy} \Rightarrow x+y-2\sqrt{xy} = 0 \Rightarrow (\sqrt{x}-\sqrt{y})^2 = 0 \Rightarrow \sqrt{x} = \sqrt{y}$$

$\checkmark$ تابع است

$$\begin{aligned} \text{د) } xg^2 + 2x - y^2 - 2y = 0 &\Rightarrow g_1^2 - yg_1^2 + 2g_1 = 2x \Rightarrow g_1^2 - y_1^2 + 2g_1 - 2y_1 - x(g_1^2 - y_1^2) = 0 \\ &\Rightarrow (g_1 - y_1)(y_1^2 + y_1 + g_1y_1 + 2 - x(g_1 + y_1)) = 0 \\ &\Rightarrow y_1^2 - yg_1^2 + 2g_1 = 2x \\ &\Rightarrow \sqrt{\Delta} = \sqrt{(y_1 - x)^2 - 4(y_1^2 + 2 - yg_1)} \end{aligned}$$

$\checkmark$ تابع است $\Rightarrow g_1 = y_1$

$$\begin{aligned} |x-1| &\geq 2 \Rightarrow x-1 \geq 2 \Rightarrow x \geq 3 \quad \text{یا} \quad x-1 \leq -2 \Rightarrow x \leq -1 \\ &\Rightarrow \boxed{a+b=4} \quad \checkmark \end{aligned}$$

①

②

$$-x^2 - bx + a \geq 0 \Rightarrow x^2 + bx - a \leq 0$$

طریقہ ششوی

$$\frac{b}{+} \frac{a}{-} \Rightarrow D_f = [b, a]$$

③

②

$$\left. \begin{aligned} a+b &= -b \Rightarrow a = -2b \\ axb &= -a \Rightarrow b = -1 \end{aligned} \right\} \Rightarrow \underline{a=2}$$

$$a+b = 2 + (-1) = 1$$

عبارت زیر را در حال عبارتی وجه یک بدست آوریم اگر ۲ است : $a=0$

$$bx+c=0 \Rightarrow x = \frac{-c}{b} = 2 \Rightarrow 2b = -c$$

$b < 0 \Rightarrow |b| = -b$

$$3a+c-3|b| = 0 - 2b + 3b = \underline{b}$$

④

②

$$\text{الف) } |x| - [x] \neq 0 \Rightarrow |x| = [x] \Rightarrow x \in \mathbb{Z}, x \geq 0$$

$$\boxed{x \in \mathbb{Z}^+ \cup \{0\}}$$

⑤

۱،۷،۸

$$\text{ب) } \sqrt{x} + \sqrt{y} = 9 \Rightarrow \sqrt{y} = 9 - \sqrt{x} \Rightarrow 9 - \sqrt{x} \geq 0 \Rightarrow \sqrt{x} \leq 9 \Rightarrow \boxed{x \leq 81}$$

$x \geq 0 \Rightarrow D_f \in [0, 81]$

الف) $2x-1 > 0 \Rightarrow x > \frac{1}{2}$ ①
 $x > 0, x \neq 1$ ②

③ $\log_x (2x-1) > 0 \Rightarrow 2x-1 > 1 \Rightarrow x > 1$ ④
 $\log_x (2x-1) > 0 \Rightarrow 2x-1 \leq 1 \Rightarrow x \leq \frac{3}{2}$ ⑤

$\{ \text{①} \cap \text{②} \cap \text{④} \cap \text{⑤} = (1, +\infty) \}$
 $\{ \text{①} \cap \text{②} \cap \text{③} \cap \text{⑤} = (\frac{1}{2}, \frac{3}{2}) \}$ $\Rightarrow D = (1, +\infty) \cup (\frac{1}{2}, \frac{3}{2})$ ✓

ب) $\frac{1}{x+\sqrt{|x|}-|x|} > 0 \Rightarrow \frac{x+\sqrt{|x|}-|x|}{x+\sqrt{|x|}} > 0 \Rightarrow -x^2+x+6 > 0 \Rightarrow x^2-x-6 < 0$
 $\Rightarrow (x-3)(x+2) < 0$

$\begin{array}{c} -2 \quad 3 \\ + \quad - \quad + \\ \hline \end{array}$
 $\Rightarrow |x| < 3 \Rightarrow -3 < x < 3 \Rightarrow \sqrt{|x|} < 3$

⑥ از اینجا که ۲ دراز و دایره در پایین شش ضلع است $b = -2$

دیسکی صورت باید از بین برود $a < -2$

$f(x) - x + 1 > 0 \Rightarrow f(x) > x - 1$

$[x] > 4 \Rightarrow x > 5 \Rightarrow 2x-1 > x-1 \Rightarrow x > 0 \Rightarrow \text{①} \cap \text{②} = x > 5$ ①

$[x] \leq 4 \Rightarrow x < 5 \Rightarrow 2x+1 > x-1 \Rightarrow x > -2 \Rightarrow \text{③} \cap \text{④} = \boxed{-\frac{4}{3} \leq x < 5}$ ②
 $D = [-\frac{2}{3}, +\infty)$

$(2x^2+2x+1)^2 \neq 0 \Rightarrow 2x^2+2x+1 \neq 0 \Rightarrow (2x+1)^2 \neq 0 \Rightarrow 2x+1 \neq 0 \Rightarrow x \neq -\frac{1}{2}$ ③

$\Rightarrow 1^2(1x^2+1x^2+2x+1) = 1^2(2x+1)^2$

$\frac{1^2(2x+1)^2}{(2x+1)^4} = \boxed{\frac{1}{2x+1}}$ ④

$2x-a > 0 \Rightarrow x > \frac{a}{2}$

$1 - \log_x (2x-a) > 0 \Rightarrow \log_x (2x-a) \leq 1 \Rightarrow 2x-a \leq 1 \Rightarrow x \leq \frac{1+a}{2} \Rightarrow \frac{a}{2} < x \leq \frac{1+a}{2}$ ⑤

$\Rightarrow \frac{a}{2} = b$
 $\frac{1+a}{2} = c$
 $c - b = \frac{1+a}{2} - \frac{a}{2} = \frac{1}{2}$ ⑥