

$$x+1\sqrt{x-1} = (\sqrt{x-1}+1)^2 = (f(x))^2 \rightarrow f(x) = \sqrt{x-1}+1$$

(1)

$$x-1\sqrt{x-1} = (\sqrt{x-1}-1)^2 = (g(x))^2 \rightarrow g(x) = \sqrt{x-1}-1$$

$$f(x)+g(x) = 1\sqrt{x-1} \rightarrow \text{من 8} \begin{cases} a=0 \\ b=1 \\ c=-1 \end{cases} \Rightarrow \frac{a+b}{c} = -\frac{1}{1}$$

$$f(x) = \left\{ (1, -1), \left(1, \frac{1}{2}\right), \left(1, \frac{3}{2}\right), \left(0, \frac{1}{2}\right) \right\}$$

(2)

$$\frac{g}{f} = \left\{ (1, -1), (0, -1) \right\}$$

$$\text{الف) } \left\{ \left(\frac{1}{2}, 2\right), \left(\frac{3}{2}, -1\right), (2, 2), \left(\frac{1}{2}, -1\right) \right\}$$

(3)

$$\text{ب) } \left\{ (1, 2), (\sqrt{3}, -1), (2, 2) \right\}$$

$$\text{ج) } \left\{ (-2, 1), (1, 3), (3, 9), (-1, 1) \right\}$$

$$\text{د) } \left\{ (1, -1), (3, -1), \left(-1, \frac{1}{2}\right) \right\}$$

$$f = \left\{ (2, 2), (3, 2), (-2, 0) \right\} \leftarrow \begin{matrix} \text{مستوی کرنا واجب است} \\ \text{روجه با مردم} \end{matrix}$$

(4)

$$h = \left\{ (2, 5), (3, 5), (-2, 5) \right\}$$

$$f(x) = \begin{cases} \sqrt{1-x} - x \geq 0 \rightarrow x \leq 1 \\ x \geq 0 \rightarrow x \geq 0 \\ x-1 \neq 0 \rightarrow x \neq 1 \end{cases}$$

$$= \{x \mid 0 \leq x < 1\}$$

$$\Rightarrow A \rightarrow D_f = \{0, 1, 2\}$$

$$g(x) \neq -1 \rightarrow x \in \mathbb{Z}$$

$$f(x) = \{(1, 0), (2, \sqrt{2}), (\sqrt{2}, \sqrt{2}), (0, \sqrt{2})\}$$

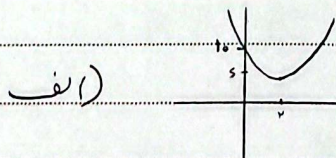
$$h(x) = \{(1, \frac{0}{\sqrt{2}}), (2, \frac{\sqrt{2}}{\sqrt{2}})\}$$

$$\text{الف) } y = (x-1)^2 + 1 \rightarrow x-1 = \sqrt[3]{1-y} \rightarrow x = \sqrt[3]{1-y} + 1$$

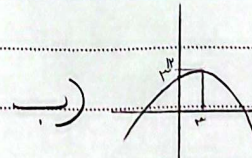
$$D_f = \mathbb{R}$$

$$\text{ب) } x^2 y^2 - 2xy - 1 = 0 \rightarrow \Delta = 4y^2 + 4y \geq 0 \rightarrow x^2 + y \geq 0$$

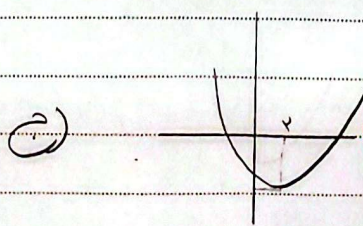
$$D_f = (-\infty, -1] \cup (0, +\infty)$$



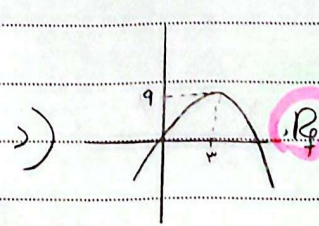
$$D_f = [5, +\infty)$$



$$D_f = (-\infty, 1]$$



$$D_f = [0, +\infty)$$



$$D_f = [0, 1]$$

الف) $R_f = R$ فرد = بزرگترین توان (الف)

(9)

ب) $R_f = R$ فرد = بزرگترین توان (ب)

ج) $\sqrt{R} \rightarrow R_f = [0, +\infty) = R^+ \cup \{0\}$

د) $R_f = [0, +\infty) \rightarrow k = \lambda \rightarrow \{k/k \in R\}$

الف) $R_f = R - \{3\}$

ب) $R_f = R - \{2\}$

(10)