

ساریا اسپانی - یازم دخت - شماره تلفن ①

$$A = \{1, 2, 3\} \quad B = \{2, 3\} \quad A \times B - B^2 \quad ①$$

$$A \times B = \{(1, 2), (1, 3), (2, 2), (2, 3), (3, 2), (3, 3)\}$$

$$B^2 = \{(2, 2), (2, 3), (3, 2), (3, 3)\}$$

$$A \times B - B^2 = \{(1, 2), (1, 3)\}$$

$$f(n) = \{(3, m^2), (2, 1), (-3, m), (-2, m), (3, m+2), (m, 4)\} \quad ②$$

$$m^2 = m + 2$$

$$m^2 - m - 2 = 0 \rightarrow (m - 2)(m + 1) = 0$$

$$m = \begin{matrix} \text{Q} \text{ Q} \Sigma \\ \text{P} \end{matrix}, \begin{matrix} \text{Q} \text{ Q} \Sigma \\ -1 \end{matrix} \rightarrow \text{Q} \text{ Q} \rightarrow \text{تابع شود}$$

$$g(n) = \{(3, m^2), (2, 1), (m, 4), (3, m+2), (-2, m), (-1, 3)\}$$

$$m^2 = m + 2$$

$$m^2 - m - 2 = 0 \rightarrow (m - 2)(m + 1) = 0$$

$$m = \begin{matrix} \text{Q} \text{ Q} \Sigma \\ \text{P} \end{matrix}, \begin{matrix} \text{Q} \text{ Q} \Sigma \\ -1 \end{matrix} \rightarrow \text{تابع نیست}$$

$$f(n) = \begin{cases} n^2 & n \leq 1 \\ an + b & 1 \leq n \leq 2 \\ n^3 & n \geq 2 \end{cases} \quad \begin{cases} 2a + b = 1 \\ a + b = 0 \end{cases} \rightarrow \begin{cases} 2a + b = 1 \\ -a - 2b = 0 \end{cases} \quad ③$$

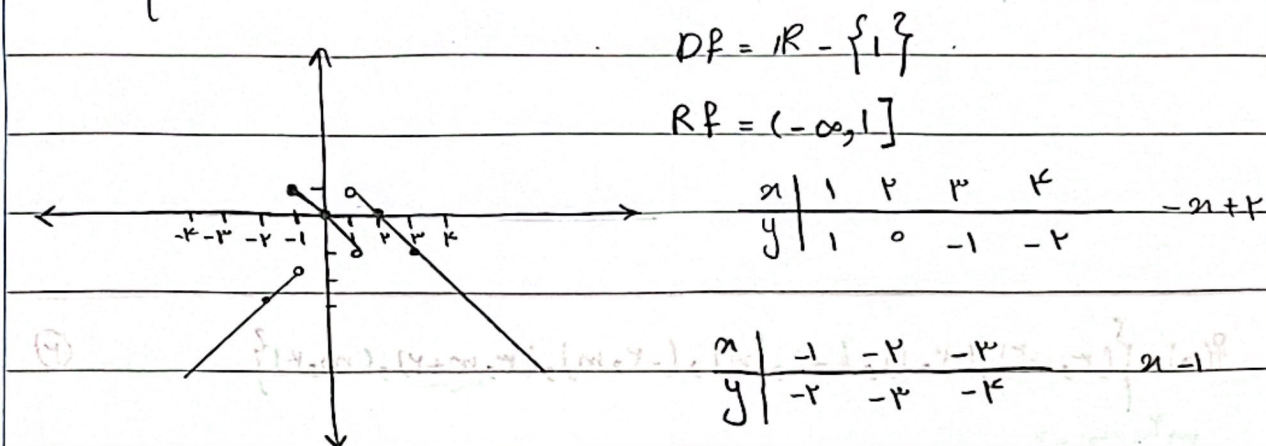
$$2a = 14 \rightarrow a = 7 \quad \boxed{b = -1} \leftarrow -b = 1$$

$$a \times b = 7 \times -1 = -7 \quad ④$$

Scbó

$$f(n) = \begin{cases} kn - r & n \geq k \\ r - kn & n \leq k \end{cases} \rightarrow \begin{matrix} kn - r = r - kn \\ \omega k = V \rightarrow \boxed{k = \frac{V}{\omega}} \end{matrix} \quad (F)$$

$$f(n) = \begin{cases} -n + r & n > 1 \\ -n & -1 \leq n < 1 \\ n - 1 & n < -1 \end{cases} \quad (A)$$



الف) $ry^r + n^{r+1} = 0$ (9)

$$\begin{cases} ry_1^r = -n^r - 1 \\ ry_2^r = -n^r - 1 \end{cases} \rightarrow \cancel{ry_1^r} = \cancel{ry_2^r} \quad \boxed{y_1 = y_2} \quad \text{تابع است}$$

ب) $n^r + ry^r - rn - 1 + y + 0 = 0$

$$(n-1)^r + (ry-3)^r = 0 \quad \begin{matrix} \text{(هر دو هم باید باشند)} \\ \text{(بزرگ شود)} \end{matrix}$$

$$\boxed{n=1}$$

$$\boxed{y = \frac{3}{r}}$$

تابع است

$$(الف) x \sin y = y \sin x$$

$$x=0 \rightarrow 0 \times \sin y = 0$$

$y \in \mathbb{R} \rightarrow$ تابع نیست

$$(ب) \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2$$

$$\sqrt{\frac{1}{y}} + \sqrt{y} = 2$$

(نقطه نقطه (۱،۱) در آن متعلق نیست)

تابع است

$$(الف) y = \sqrt{\frac{x-1}{x-3}} + \sqrt{\frac{2-x}{x}}$$

$$\begin{array}{c} 1 \quad 3 \\ + \phi - \phi + \\ (-\infty, 1] \cup (3, +\infty) \end{array}$$

$$\begin{array}{c} 0 \quad 2 \\ + \phi - \phi - \\ (0, 2] \end{array}$$

استدلال صحیح

$$Df = (0, 1]$$

$$(ب) \sqrt{x} + \sqrt{y-1} = \sqrt{3}$$

$$\sqrt{y-1} = \sqrt{3} - \sqrt{x}$$

$$x \geq 0 \quad \sqrt{3} - \sqrt{x} \geq 0$$

$$\sqrt{3} \geq \sqrt{x} \rightarrow 3 \geq x$$

$$Df = [0, 3]$$

$$(a) y = \frac{\sqrt{2x^2 - 5x + 4}}{\sqrt{x - 10x + 14}}$$

$$x^2 - 5x + 4 \geq 0$$

$$(x-4)(x-1) \geq 0$$

$$\begin{array}{c} 1 \quad 4 \\ + \quad - \quad + \end{array}$$

$$x - 10x + 14 > 0$$

$$(I) \rightarrow (-\infty, 1] \cup [4, +\infty)$$

$$-9x + 14 > 0$$

$$14 > 9x \rightarrow \frac{14}{9} > x \quad (II) \rightarrow (-\infty, \frac{14}{9})$$

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

$$(b) y = \sqrt{\frac{2x^2 - 5x + 4}{x^2 - 10x + 14}}$$

$$\frac{(x-4)(x-1)}{(x-1)(x-2)} \geq 0$$

$$\begin{array}{c} 1 \quad 2 \quad 4 \quad 1 \\ + \quad - \quad + \quad - \quad + \end{array}$$

$$Df = (-\infty, 1] \cup (2, 4] \cup (1, +\infty)$$

$$(a) y = \frac{\sqrt{2x^2 - 2x + 3}}{\sqrt{3x^2 - 5x + 4}}$$

$$2x^2 - 2x + 3 \geq 0 \Rightarrow (x-1)(x-3) \geq 0$$

$$x = \frac{1}{2} \quad x = \frac{3}{2}$$

$$\begin{array}{c} 1 \quad \frac{3}{2} \\ + \quad - \quad + \end{array} \quad (I) = (-\infty, 1] \cup [\frac{3}{2}, +\infty)$$

$$3x^2 - 5x + 4 \geq 0 \Rightarrow (x-1)(x-4) \geq 0$$

$$x = \frac{1}{3} \quad x = \frac{4}{3}$$

$$\begin{array}{c} 1 \quad \frac{4}{3} \\ + \quad - \quad + \end{array} \quad (II) = (-\infty, 1] \cup (\frac{4}{3}, +\infty)$$

$$Df = (I) \cap (II) = (-\infty, 1] \cup [\frac{4}{3}, +\infty)$$

$$(b) y = \sqrt{\frac{2x^2 - 2x + 3}{3x^2 - 5x + 4}}$$

$$\frac{2x^2 - 2x + 3}{3x^2 - 5x + 4} \geq 0$$

$$\frac{(x-1)(x-3)}{(x-1)(x-4)} \geq 0$$

$$x = 1, \frac{3}{2}, \frac{4}{3}$$

$$\begin{array}{c} * \quad \frac{3}{2} \quad \frac{4}{3} \\ + \quad - \quad + \quad - \quad + \end{array}$$

$$Df = (-\infty, 1] \cup (1, \frac{4}{3}) \cup [\frac{4}{3}, +\infty)$$

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