

عسل کا مری یاد رکھو: سب سے پہلے (C)

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

سوال ←

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

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

$$\text{الف) } \{(3, m^2), (1, -3, m), (-2, m), (3, m+2), (m, 1)\}$$

سوال ←

$$\rightarrow m^2 = m+2 \rightarrow m^2 - m - 2 = (m-2)(m+1) \quad \begin{matrix} m=2 \\ m=-1 \end{matrix}$$

$$\xrightarrow{m=2} (3, 1), (1, 1) \times \quad \xrightarrow{m=-1} (3, 1), (1, 1) \checkmark \rightarrow \boxed{m=-1}$$

$$\text{ب) } g(x) = \{(3, m^2), (1, 1), (m, 1), (3, m+2), (-3, m), (-1, 3)\}$$

$$m^2 = m+2 \rightarrow m^2 - m - 2 = (m-2)(m+1) \quad \begin{matrix} m=2 \\ m=-1 \end{matrix}$$

$$\xrightarrow{m=2} (3, 1), (1, 1) \times \quad \xrightarrow{m=-1} (-1, 1), (-1, 3) \times$$

بہ از اس سے مقدار از m کا بچہ نہیں بائیں

$$f(x) = \begin{cases} x^2 - 1 & : x \leq 1 \\ ax + b & : 1 \leq x \leq 2 \\ x^2 & : x \geq 2 \end{cases}$$

سوال ←

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

$$\rightarrow a = -b \quad \text{و} \quad 2(a) + b = (2)^2 \rightarrow 2a + b = 4 \quad \begin{matrix} a = -b \\ 2a - a = 4 - a \end{matrix}$$

$$a = 1 \quad b = -1 \rightarrow a \times b = 1 \times (-1) = \boxed{-1}$$

$$f(x) = \begin{cases} 2x - 3 & : x \geq k \\ 2 - 3x & : k \geq x \end{cases}$$

سوال ←

$$\Rightarrow 2k - 3 = 2 - 3k \rightarrow 5k = 5 \rightarrow k = 1 \rightarrow \boxed{k=1}$$

سوال ←

$$f(x) = \begin{cases} -x+2 & x > 1 \rightarrow (1) \\ -x & -1 < x < 1 \rightarrow (2) \\ x-1 & x < -1 \rightarrow (3) \end{cases}$$

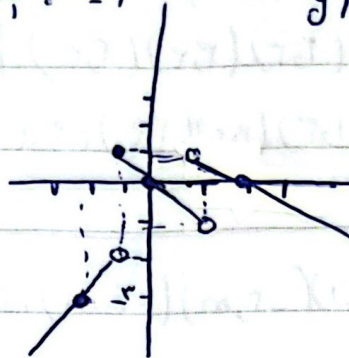
$$(1) \rightarrow \begin{array}{c|c} x/2 & 1 \\ \hline y & 0 \end{array}$$

$$(2) \rightarrow \begin{array}{c|c} x/2 & 1 \\ \hline y & 1 \end{array}$$

$$(3) \rightarrow \begin{array}{c|c} x/-1 & -2 \\ \hline y & -3 \end{array}$$

$$Df = \mathbb{R} - \{1\}$$

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



سوال ← تابع باشد ضمیمه

به انداز هر یک دین را در

$$\rightarrow \left[-\frac{1}{2}\right] \text{ و } \left[-1, 1\right] \text{ و } \dots$$

ب)  $x^2 + 6y^2 - 2x - 12y + 10 = x^2 - 2x + 1 + 6y^2 - 12y + 9$

در دو صورت  $\rightarrow (x-1)^2 + (2y-3)^2 = 0$   $\rightarrow x=1$   $\rightarrow 2y-3=0 \rightarrow y=\frac{3}{2}$

نقطه در نقطه  $(1, \frac{3}{2})$  می باشد و در این تابع است

سوال ←  $x \sin y = y \sin x \xrightarrow{x=0} 0 = y \sin 0 \rightarrow y$  هر عددی می تواند باشد

ب)  $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \xrightarrow{\text{به توان 2}} \frac{x}{y} + \frac{y}{x} + 2\sqrt{\frac{xy}{yx}} = 4$

$\rightarrow \frac{x^2+y^2}{xy} + 2\sqrt{\frac{xy}{xy}} = 4 \rightarrow \frac{x^2+y^2}{xy} + 2 = 4 \rightarrow \frac{x^2+y^2}{xy} = 2$

$\rightarrow 2xy = x^2+y^2 \rightarrow x^2+y^2-2xy = 0 \rightarrow (x-y)^2 = 0$

$\rightarrow x=y$  هر عددی می تواند باشد و عبارت تابع می شود

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الف)  $y = \sqrt{\frac{x-1}{x-3}} + \sqrt{\frac{2-x}{x}} \rightarrow \frac{x-1}{x-3} \geq 0 \text{ و } \frac{2-x}{x} \geq 0 \leftarrow \text{سراش}$

①  $\frac{x-1}{x-3} \rightarrow \frac{1}{+} \frac{3}{-} \rightarrow (-\infty, 1] \cup (3, +\infty)$

②  $\frac{2-x}{x} \rightarrow \frac{0}{-} \frac{2}{+} \rightarrow (0, 2] \xrightarrow{\cap} (0, 1]$

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

①  $x \geq 0$  ②  $\sqrt{3} - \sqrt{x} \geq 0 \rightarrow \sqrt{3} \geq \sqrt{x} \rightarrow 3 \geq x$

$\cap \rightarrow [0, 3] \rightarrow 0 \leq x \leq 3$

الف)  $y = \frac{\sqrt{x^2 - \sqrt{x+4}}}{\sqrt{x-1 \cdot x+4}} \leftarrow \text{سراش}$

①  $\rightarrow \sqrt{x^2 - \sqrt{x+4}} = \sqrt{(x-1)(x-4)} \rightarrow (x-1)(x-4) \geq 0$

$\frac{1}{+} \frac{4}{-} \rightarrow (-\infty, 1] \cup (4, +\infty)$

$\cap \rightarrow \text{لا } (-\infty, 1]$

②  $-9x+14 > 0 \rightarrow 14 > 9x \rightarrow \frac{14}{9} > x \rightarrow (-\infty, \frac{14}{9})$

ب)  $y = \frac{\sqrt{x^2 - \sqrt{x+4}}}{x^2 - 1 \cdot x + 4} = \frac{\sqrt{(x-1)(x-4)}}{(x-1)(x-4)} \rightarrow \frac{(x-1)(x-4)}{(x-1)(x-4)} \geq 0$

تقسیم عددها  $\rightarrow \frac{1}{+} \frac{4}{-} \frac{4}{+} \frac{1}{-} \rightarrow (-\infty, 1] \cup (4, 4] \cup (1, +\infty)$

الف)  $y = \frac{\sqrt{2x^2 - 5x + 3}}{\sqrt{3x^2 - 5x + 2}} \leftarrow \text{سراش}$

①  $2x^2 - 5x + 3 \geq 0 \rightarrow x^2 - 5x + 6 \rightarrow (x-2)(x-3) \rightarrow (2x-2)(x-\frac{3}{2})$

$\frac{1}{+} \frac{3}{-} \rightarrow (-\infty, 1] \cup [\frac{3}{2}, +\infty)$

$$\begin{aligned}
 \textcircled{2} \quad & 4x^2 - \sqrt{x+1} > 0 \xrightarrow{\text{دوسری طرف سے } \sqrt{x+1} \text{ کو ہٹا دیا جائے گا}} x^2 - \sqrt{x+1} \rightarrow (x-1)(x-\frac{1}{4}) \xrightarrow{\text{مربع کی صورت میں}} \\
 & (x-1)(x-\frac{1}{4}) \xrightarrow{\text{مربع کی صورت میں}} \begin{array}{c} \text{1} \quad \frac{1}{4} \\ | \quad | \\ + \quad - \quad + \end{array} \rightarrow (-\infty, 1) \cup (\frac{1}{4}, +\infty) \\
 & \text{I.N.V.} \rightarrow (-\infty, 1) \cup [\frac{1}{4}, +\infty)
 \end{aligned}$$

$$\begin{aligned}
 \textcircled{3} \quad & \sqrt{\frac{4x^2 - 0x + 3}{4x^2 - \sqrt{x+1}}} \rightarrow \frac{4x^2 - 0x + 3}{4x^2 - \sqrt{x+1}} \geq 0 \rightarrow \frac{(x-1)(x-\frac{3}{4})}{(x-1)(x-\frac{1}{4})} \\
 & \begin{array}{c} * \quad \frac{3}{4} \quad \frac{1}{4} \\ | \quad | \quad | \\ + \quad + \quad - \quad + \end{array} \rightarrow P.f. = (-\infty, 1) \cup (1, \frac{3}{4}) \cup [\frac{1}{4}, +\infty)
 \end{aligned}$$