

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

$$B^c = \{(2,1), (2,2), (3,1), (3,2)\}$$

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

الف) $m+2 = m^2 \rightarrow m^2 - m - 2 \leq 0 \rightarrow m = -1, 2 \rightarrow m=2$ غرض $(2,1)$ و $(2,2)$
 $m = -1$

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

ب) $m^2 \leq m+2 \rightarrow m^2 - m - 2 \leq 0 \rightarrow m = -1, 2 \rightarrow m = -1$ غرض $(-1,1)$ و $(-1,2)$
 $m = 2$ غرض $(2,1)$ و $(2,2)$

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

به جای هر مقداری از m تابع

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

$$\Rightarrow f(1) = n^2 - 1 = an + b \rightarrow f(1) = 0 = a + b$$

$$\begin{cases} 2a + b = 1 \\ a + b = 0 \end{cases}$$

$$\begin{aligned} a &= 1 \\ b &= -1 \end{aligned}$$

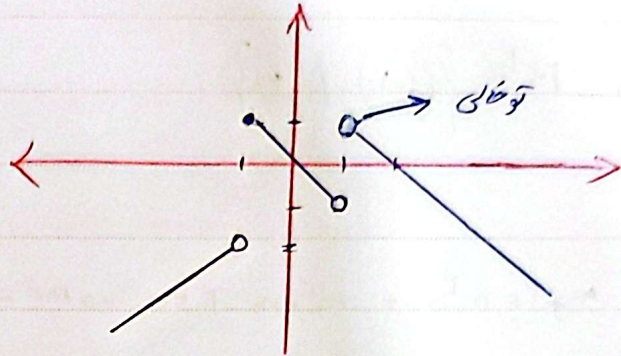
$$a \times b = 1 \times (-1) = -1$$

$$f(n) = \begin{cases} 2n-3, & n \geq K \\ 5-3n, & n < K \end{cases} \Rightarrow f(K) = 2K-3 = 5-3K \rightarrow 2K-3 = 5-3K$$

$$\downarrow$$

$$= \frac{V}{5}$$

$$f(n) = \begin{cases} -n+2, & n > 1 \\ -n, & -1 < n < 1 \\ n-1, & n < -1 \end{cases}$$



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

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

$$(الف) \quad 2y^3 + x^2 + 1 = 0 \quad \begin{cases} x_1^2 = -2y^3 - 1 \\ x_2^2 = -2y^3 - 1 \end{cases} \xrightarrow{x_1 = x_2} -x_1^3 + 1 = -x_2^3 + 1$$

$$\downarrow$$

$$y_1^3 = y_2^3$$

$$\downarrow$$

$$\boxed{y_1 = y_2}$$

تابع هست

$$(ب) \quad x^2 - 2x + 1 + 6y^2 - 12y + 9 = 0 \Rightarrow (x-1)^2 + (2y-3)^2 = 0 \rightarrow \begin{cases} x=1 \\ y=1.5 \end{cases}$$

تابع نقطه
تابع هست

$$(الف) \quad x \sin y = y \sin x \rightarrow x=0 \quad \frac{x \sin y}{x} = \frac{y \sin x}{y} \rightarrow y = 180^\circ$$

تابع نیست

DATE:

SUB:

$$ب) \sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} \geq 2 \rightarrow a + \frac{1}{a} \geq 2, a > 0$$

$$\Rightarrow \sqrt{\frac{x}{y}} \geq 1 \rightarrow (x \geq y) \text{ ————— } \text{مع } 0$$

الف) $y = \sqrt{\frac{n-1}{n-p}} + \sqrt{\frac{p-n}{n}}$

(1)

$$\frac{n-1}{n-p} \geq 0 \quad \frac{1}{1-p} + \frac{p}{p} \quad I$$

$I \cap II \rightarrow D_f \in (0, 1]$

$$\frac{p-n}{n} \geq 0 \quad \frac{0}{p} + \frac{p}{p} \quad II$$

—) $\sqrt{n} + \sqrt{p-1} = \sqrt{p} \Rightarrow \sqrt{p-1} = \sqrt{p} - \sqrt{n} \rightarrow \sqrt{p} - \sqrt{n} \geq 0$

$\downarrow$
 $n \geq 0$
 I
 $I \cap II \rightarrow [0, p]$

$\downarrow$
 $p \geq n$
 II

Elipon

$$الف) y = \frac{\sqrt{x^2 - 9x + 4}}{\sqrt{-9x + 14}} = \frac{\sqrt{(x-1)(x-4)}}{\sqrt{-9x + 14}}$$

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$$(x-1)(x-4) \geq 0 \quad \frac{1}{+} \frac{4}{-} \quad I$$

$$-9x + 14 > 0 \quad \frac{14}{+} \frac{9}{-} \quad II \quad \xrightarrow{I \cap II} D_f = (-\infty, 1] \cup [4, +\infty)$$

$$ج) y = \sqrt{\frac{x^2 - 9x + 4}{x^2 - 10x + 14}} = \sqrt{\frac{(x-1)(x-4)}{(x-2)(x-1)}} \quad \frac{1}{+} \frac{4}{-} \frac{9}{+} \frac{1}{-}$$

$$\Rightarrow D_f = (-\infty, 1] \cup [4, +\infty)$$

$$الف) y = \frac{\sqrt{x^2 - 6x + 9}}{\sqrt{x^2 - 9x + 4}} = \frac{\sqrt{(x-1)(x-3)}}{\sqrt{(x-1)(x-4)}}$$

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$$(x-1)(x-3) \geq 0 \quad \frac{1}{+} \frac{3}{-} \quad I$$

$$(x-1)(x-4) > 0 \quad \frac{1}{+} \frac{4}{-} \quad II \quad \xrightarrow{I \cap II} D_f = (-\infty, 1] \cup [\frac{3}{2}, +\infty)$$

$$ج) y = \sqrt{\frac{x^2 - 6x + 9}{x^2 - 9x + 4}} = \sqrt{\frac{(x-1)(x-3)}{(x-1)(x-4)}}$$

$$\frac{1}{+} \frac{3}{-} \frac{4}{+} \quad \rightarrow D_f = (-\infty, \frac{3}{2}) \cup [\frac{3}{2}, +\infty) - \{1\}$$

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