

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

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

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

$$\text{دو} \rightarrow m^2 - m - 2 \geq 0 \Rightarrow (m - 2)(m + 1) \geq 0 \Rightarrow m \geq 2, -1$$

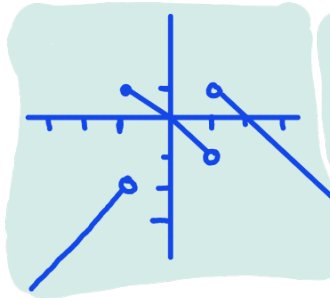
$$\text{دو} \rightarrow m^2 - m - 2 \geq 0 \Rightarrow (m - 2)(m + 1) \geq 0 \Rightarrow m \geq 2, -1$$

$$f(x) = \begin{cases} x^2 - 1 & x \leq 1 \\ ax + b & 1 < x \leq 2 \\ x^2 & x \geq 2 \end{cases} \rightarrow a + b = 0$$

$$1 - 2a + a \geq 0 \Rightarrow a \geq 1, b \geq -1 \Rightarrow a \times b \geq -1$$

$$2k - 3 \geq -3k \Rightarrow 5k \geq 0 \Rightarrow k \geq 0$$

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



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

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

$$\text{دو} \rightarrow \begin{cases} y_1^2 = x^2 - 1 \\ y_2^2 = x^2 - 1 \end{cases} \rightarrow x y_1^2 = x y_2^2 \rightarrow \text{خط}$$

$$\text{دو} \rightarrow \begin{cases} y_1^2 - 1 = y_2^2 - 1 \\ y_1^2 - 1 = y_2^2 - 1 \end{cases} \rightarrow y_1^2 - y_2^2 = 0 \rightarrow (y_1 - y_2)(y_1 + y_2) = 0$$

$$\text{دو} \rightarrow y_1^2 - 1 = y_2^2 - 1 \rightarrow y_1^2 - y_2^2 = 0 \rightarrow (y_1 - y_2)(y_1 + y_2) = 0$$

$\lim \rightarrow \frac{\sin y}{y}, \frac{\sin x}{x} \rightarrow 1$
 $\lim_{x \rightarrow 0} \frac{\sin x}{x} = 1$

$\lim \rightarrow \frac{x}{y} + \frac{y}{x} + x^2 y^2 \rightarrow \frac{x^2 + y^2}{xy} \rightarrow x^2 + y^2 + 2xy \rightarrow x^2 + y^2 - 2xy = 0 \rightarrow (x-y)^2 = 0 \rightarrow y = x$
 $\lim_{x \rightarrow 0} \frac{x}{y} = 1$

$\lim \rightarrow y^2 \sqrt{\frac{x-1}{x-4}} + \sqrt{\frac{x-1}{x-4}} \rightarrow \frac{1}{+0-0+} \cap \frac{0}{-0+0-} \rightarrow D_f = (0, 1]$

$\lim \rightarrow \sqrt{y-1} = \sqrt{x-4} \rightarrow \sqrt{x} - \sqrt{4} \geq 0 \rightarrow \sqrt{x} \geq \sqrt{4} \rightarrow x \geq 4$
 $D_f = [4, \infty)$

$\lim \rightarrow \sqrt{x^2 - 4x + 4} \rightarrow (x-1)(x-4) \rightarrow \frac{1}{+0-0+} \cap \frac{0}{-0+0-} \rightarrow D_f = (-\infty, 1]$

$\lim \rightarrow \sqrt{\frac{x^2 - 4x + 4}{x^2 - 10x + 14}} \rightarrow \frac{(x-1)(x-4)}{(x-2)(x-5)} \rightarrow \frac{1}{+0-0+} \cap \frac{0}{+0-0+} \rightarrow D_f = (-\infty, 1] \cup (2, 4] \cup (1, +\infty)$

$\lim \rightarrow \sqrt{\frac{x^2 - 6x + 9}{x^2 - 4x + 4}} \rightarrow \frac{(x-3)(x-2)}{(x-2)(x-4)} \rightarrow \frac{1}{+0-0+} \cap \frac{0}{+0-0+} \rightarrow D_f = (-\infty, 1) \cup [\frac{3}{2}, +\infty)$

10

$$\begin{aligned}
 & \rightarrow \sqrt{\frac{x^2 - \sqrt{a}x + c}{x^2 - 10x + 4}} \rightarrow (x-2)(x-3) \rightarrow \frac{1}{x-2} + \frac{1}{x-3} \\
 & \rightarrow \frac{1}{x-2} + \frac{1}{x-3} - \frac{1}{x-4} + \frac{1}{x-5} \\
 & D_f = (-\infty, 1) \cup (1, \frac{4}{5}) \cup [\frac{5}{4}, +\infty)
 \end{aligned}$$