

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

$$B = \{2, 3\}$$

۱۹، ۵

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

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

$$\rightarrow \{(1, 2), (1, 3)\}$$

$$\text{الف) } m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m - 2)(m + 1) \rightarrow m = 2, -1$$

چون به مازای ۲ و ۴ و ۱ می رسد

$$\text{ب) } m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow m = 2, -1$$

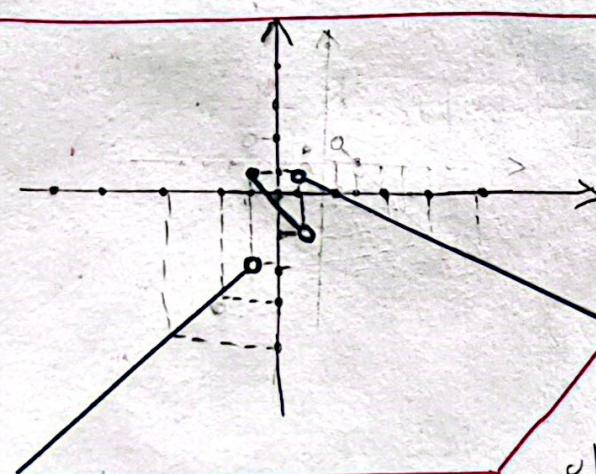
به ازای هیچ قدری از m

$$x = 1 \rightarrow x^2 - 1 = ax + b \rightarrow a + b = 0$$

$$x = 2 \rightarrow x^2 - 1 = ax + b \rightarrow 2a + b = 1$$

$$\rightarrow \begin{cases} a = 1 \\ b = -1 \end{cases} \rightarrow x^2 - 1$$

$$x = k \rightarrow 2x - 1 = 4 - 3x \rightarrow 5x = 5 \rightarrow x = 1 \rightarrow k = 1$$



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

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

$$\text{الف) } x = 0^\circ$$

$$x \sin y = y \sin x$$

$$\sin y = 0 \rightarrow y = 180^\circ \text{ or } y = 0^\circ$$

$$\text{الف) } y^2 = -x^2 - 1$$

$$y_1^2 = y_2^2 \rightarrow y_1 = y_2$$

$$\text{ب) } x^2 - 2x + 1 + 2y^2 - 12y + 9 = 0$$

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

$$\text{ب) } \left(\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \right) \Rightarrow \frac{x}{y} + \frac{y}{x} + 2 = 4$$

$$\frac{x^2 + y^2}{xy} = 2 \rightarrow x^2 + y^2 - 2xy = 0$$

$$(x - y)^2 = 0$$

$$x = y$$

$$\frac{x-1}{x-2} \geq 0 \rightarrow x \in (-\infty, 1] \cup (2, +\infty)$$

$$\frac{2-x}{x} \geq 0 \rightarrow x \in (0, 2]$$

$$D = (0, 1]$$

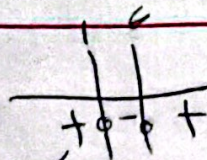
ب) $\sqrt{y-1} = \sqrt{3} - \sqrt{x} \rightarrow x \geq 0$

$0 \leq x \leq 3$

چون که جواب $\sqrt{y-1}$ باید منفی باشد، پس $x \leq 3$ ✓

(1, 1.75)

$\sqrt{x^2 - 7x + 6} \rightarrow x^2 - 7x + 6 \geq 0 \rightarrow (x-1)(x-6) \geq 0 \rightarrow$



الف) (2)

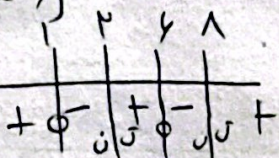
$\sqrt{-9x+16} \rightarrow -9x+16 > 0$

$\frac{16}{9} > x \leftarrow 16 > 9x$

$(-\infty, 1] \cup [6, +\infty)$

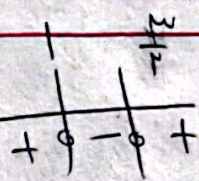
$D_f = (-\infty, 1]$ ✓

ب) $\frac{x^2 - 7x + 6}{x^2 - 10x + 16} \geq 0 \rightarrow \frac{(x-1)(x-6)}{(x-2)(x-8)}$



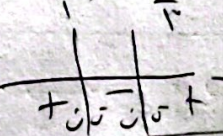
$D_f = (-\infty, 1] \cup (2, 6] \cup (8, +\infty)$ ✓

الف) $\sqrt{2x^2 - 4x + 3} \rightarrow 2x^2 - 4x + 3 \geq 0 \rightarrow (x-1)(2x-3) \geq 0 \rightarrow$



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

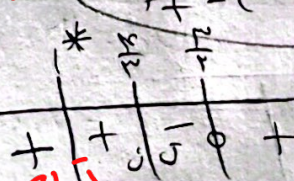
$\sqrt{3x^2 - 7x + 4} \rightarrow 3x^2 - 7x + 4 \geq 0 \rightarrow (x-1)(3x-4) \geq 0 \rightarrow$



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

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

ب) $\frac{(x-1)(2x-3)}{3x^2 - 7x + 4} \geq 0 \rightarrow \frac{(x-1)(2x-3)}{(x-1)(3x-4)}$



$D_f = \mathbb{R} - [\frac{4}{3}, \frac{3}{2}] - \{1\}$