

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

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

$$y = 1 + 3 + x - 2\sqrt{2x}$$

$$\rightarrow 2x \geq 0 \rightarrow x \geq 0 \rightarrow D_f = [0, +\infty)$$

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

$$\frac{1}{2} \quad \frac{2}{2} \quad \frac{4}{2} \quad \frac{1}{2}$$

$$z = 1 \text{ و } 2$$

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

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

$$\cap \rightarrow z \in (-\infty, 1] \cup (1, +\infty)$$

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$$y = \sqrt{\frac{x^2 - 4x + 4}{x^2 - 4x + 4}} \rightarrow \frac{x^2 - 4x + 4}{x^2 - 4x + 4} \geq 0$$

$$z = 1 \text{ و } 2$$

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

ب

$$y = \frac{\sqrt{x^2 - 4x + 4}}{\sqrt{x^2 - 4x + 4}} \geq 0 \quad \text{و } z = 1 \text{ و } 2$$

$$\frac{1}{2} \quad \frac{4}{2} \rightarrow (-\infty, 1] \cup [\frac{4}{2}, +\infty) \rightarrow A$$

$$\frac{1}{2} \quad \frac{4}{2} \rightarrow (-\infty, 1) \cup (\frac{4}{2}, +\infty) \rightarrow B$$

$$A \cap B = (-\infty, 1) \cup [\frac{4}{2}, +\infty) \leftarrow D_f$$

$$y = \sqrt{\frac{2x^2 - 4x + 2}{2x^2 - 4x + 2}} \geq 0$$

$$\frac{1}{2} \quad \frac{4}{2} \quad \frac{2}{2} \rightarrow D_f = \left(+\frac{4}{2}, \frac{4}{2} \right]$$

$$D_f = (-\infty, 1) \cup (1, \frac{4}{2}) \cup \left(\frac{4}{2}, +\infty \right)$$

$$= \{(1,2)(1,3)(2,2)(2,3)(2,2)(2,3)\} - \{(2,2)(2,3)(2,2,2,2)\}$$

(2,2,2,2)

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

$$m^2 = m + 2$$

$$m^2 - m - 2 = 0$$

$$(m+1)(m-2) = 0$$

$$m = -1 \checkmark$$

$$\rightarrow m = -1, m = 2 \rightarrow (m=2) \rightarrow (2,1) \text{ و } (2,2) \rightarrow m \neq 2$$

$$m^2 = m + 2$$

$$\rightarrow m = -1, m = 2$$

$$m = -1 \rightarrow (-1,2) \text{ و } (-1,3) \rightarrow m \neq -1$$

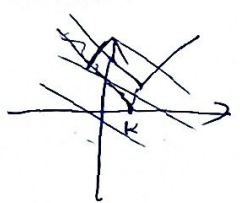
$$m = 2 \checkmark$$

$$x=1 \rightarrow 1^2 - 1 = a + b = 0 \rightarrow ab = -4$$

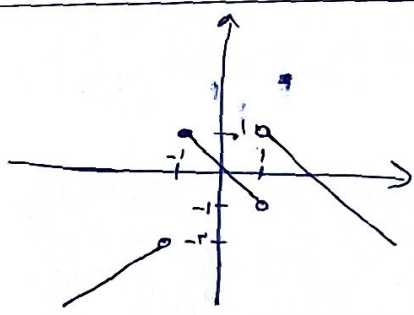
$$x=2 \rightarrow 2^2 - 1 = 2a + b$$

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

$$\rightarrow a = 1 \Rightarrow b = -1$$



$$x = k \rightarrow 2k - 3 = 4 - 3k \rightarrow k = \frac{7}{5} = 1.4$$



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

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

$$2y^3 + x^2 + 1 = 0$$

$$y_1 = y_2 \rightarrow \sqrt{\frac{-x^2-1}{2}} = \sqrt{\frac{-x^2-1}{2}} \checkmark$$

نکته

$$x^2 - 2x = -2y^2 + 4y = 0$$

$$(x-1)^2 - 1 = -(2y+2)^2 - 1$$

$$\rightarrow x-1 = |2y+2| \rightarrow x =$$

$$\text{اگر } x=1 \rightarrow 2y+2=0 \text{ و } 2y+2=-2 \rightarrow y=1 \text{ و } y=-2$$

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



$$x \geq 0 \rightarrow 0 \leq \sin y \leq y \leq 0$$

$$\rightarrow y = 0$$

نکته

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

نکته

$$\frac{x-1}{x-2} \geq 0 \rightarrow \frac{1}{\frac{1}{x-2} - \frac{1}{x-1}} + \frac{1}{\frac{1}{x-2} - \frac{1}{x-1}} \geq 0$$

$$\rightarrow (-\infty, 1] \cup (2, +\infty)$$

$$\frac{x-1}{x} \geq 0 \rightarrow (0, 2]$$

$$\frac{1}{\frac{1}{x} - \frac{1}{2}} + \frac{1}{\frac{1}{x} - \frac{1}{2}} \geq 0$$

$$A \cap B = (0, 1]$$

$$\sqrt{x^2-1} + \sqrt{y^2-1} = \sqrt{xy}$$

!! در صورتی که x و y در [1, +infinity) باشند !!

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