

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

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

$$B = \{(r, r), (r, r), (r, r), (r, r)\}$$

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

الف) $m^Y = m + Y \rightarrow m = -1 \quad Y \rightarrow m \neq Y \rightarrow \boxed{m = -1}$

c) $m^r = m + r \rightarrow m = -16r \rightarrow m \neq -1, m \neq r \rightarrow m \in \emptyset$

$$f(n) = \begin{cases} n^r & n \leq 1 \\ an+b & 1 \leq n \leq r \\ n^r & n \geq r \end{cases}$$

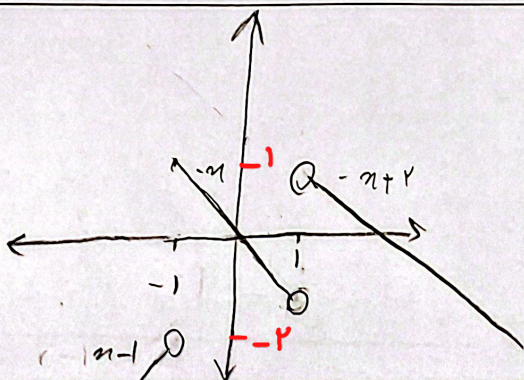
$$a \times b = ?$$

$$\left\{ \begin{array}{l} n=1 \rightarrow \cancel{a}^0 = a + b \\ n=2 \rightarrow \cancel{a}^1 = a + b \\ \quad \quad \quad \wedge = 2a + b \end{array} \right.$$

$$a = 1 \quad b = -1$$

$$(a \times b = -9f)$$

$$r_n - r = f - r \gamma \rightarrow \Delta r = V \rightarrow n = \left(\frac{V}{\Delta} \right) = K$$



$$D_f = (-\infty, 1) \cup (1, +\infty) = \mathbb{R} - \{1\}$$

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

الف) $f: \mathbb{R}^2 \rightarrow \mathbb{R}^2, f(x, y) = (x^2 + y^2, x^2 - y^2)$ ✓ ۲

$\Rightarrow f(x_1, y_1) = f(x_2, y_2) \Rightarrow x_1^2 + y_1^2 = x_2^2 + y_2^2$ ✓

ب) $f: \mathbb{R}^2 \rightarrow \mathbb{R}^2, f(x, y) = (x^2 + y^2, x^2 - y^2)$ ✓ ۳

$\Delta = 0, 9 > 0$ ✓

$\Delta = 0, 9 < 0$ ✓

الف) $\sin y = y \sin x, x=0 \Rightarrow y \in \mathbb{R} \Rightarrow X$ ✓ ۴

ب) $\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}} = 2 \Rightarrow f = \frac{x}{y} + 2\sqrt{1} + \frac{y}{x}$ ✓ ۵

$\Rightarrow \frac{x}{y} + \frac{y}{x} = 2 \Rightarrow \frac{x^2 + y^2}{xy} = 2 \Rightarrow x^2 - 2xy + y^2 = 0 \Rightarrow (x - y)^2 = 0 \Rightarrow x = y$ ✓

الف) $\frac{x-1}{x-2} > 0, \frac{y-1}{y-2} > 0 \Rightarrow D_f = \mathbb{R} - [0, 2]$ (0, 1) (0, 2)

ب) $\sqrt{x-1} = -\sqrt{y-1} \Rightarrow x = y$ (0, 1) (0, 2)

الف) $\sqrt{x^2 - 5x + 4} \rightarrow 1, 4$ (0, 1) (0, 2)

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