

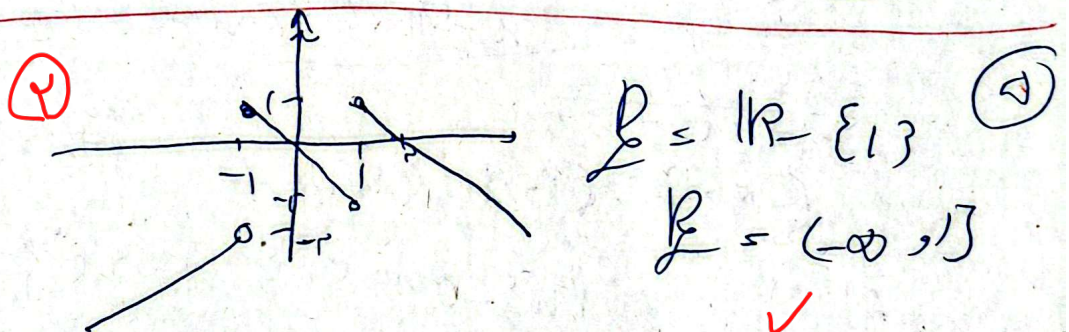
$A \times B = \{(1,2), (1,3), (2,2), (2,3)\}$ (1)
 $B^2 = B \times B = \{(2,2), (2,3), (3,2), (3,3)\}$ (2)
 $\{ (1,2), (2,3) \}$ (3)

الف) $m^2 - m - 2 \leq (m-2)(m+1)$
 $m^2 - m - 2 = (m-2)(m+1)$
 $m^2 - m - 2 = (m-2)(m+1)$
 $m \leq -1$ (2)

ب) $m^2 - m - 2 \leq (m-2)(m+1)$
 $m^2 - m - 2 = (m-2)(m+1)$
 $(-2, 1)$ (3)

$a + b \leq (1)^2 - 1$
 $a + b \leq 0$
 $a \leq b$
 $b \leq -a$
 $a \leq 1$
 $b \leq -1$
 $a + b \leq -2$ (4)

$2k - 3 \leq 5k \Rightarrow 2k \leq 8 \Rightarrow k \leq 4$ (5)



الف) $2y^3 \leq x^2 - 1$ $y^3 = \frac{x^2 - 1}{2}$ (7)

تعریف ریاضی
 $y^3 \leq \frac{x_1^2 - 1}{2}$
 $y^3 \leq \frac{x_2^2 - 1}{2}$
 $x_1 \leq x_2$
 $y_1 \leq y_2$
 $y_1 \leq y_2$ (8)

ب) $(x^2 - 2x + 1) + (2y^3 - 12y + 9) \leq 0 \Rightarrow (x-1)^2 + (2y-3)^2 \leq 0$
 $x-1 \leq 0$
 $2y-3 \leq 0$
 $x \leq 1$
 $y \leq \frac{3}{2}$ (9)

الف) $\lim_{n \rightarrow \infty} (\sin y) = y$ ✓ (1)

تابع نسبت

ی بی‌نهایت دارد

ب) $\sqrt{\frac{n}{y}} + \sqrt{\frac{y}{n}} \leq 1 \xrightarrow{\text{مربع کردن}} \frac{n}{y} + \frac{y}{n} + 2 \leq 1$ (2)

$\Leftrightarrow \frac{y}{n} + \frac{n}{y} \leq -2$ $\frac{n^2 + y^2}{ny} \leq -2$ $n^2 + y^2 \leq -2ny$

$(n+y)^2 \leq 0$ $n+y \leq 0$

ناممکن است ✓

ان) $\sqrt{\frac{n-1}{n-2}} \geq \frac{n-1}{n-2}$ (1) (2, 7.5)

$\frac{1}{2} \leq \frac{n-1}{n-2}$ $\frac{1}{2} \leq \frac{n-1}{n-2}$ $\frac{1}{2} \leq \frac{n-1}{n-2}$ $\frac{1}{2} \leq \frac{n-1}{n-2}$

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قسمت ب: ✓ $D = \{1\}$

(1, 2.5) (ان) $(n-1)(n-2) \geq \frac{1}{2}$ ✓

$n^2 - 3n + 2 \geq \frac{1}{2}$ $2n^2 - 6n + 4 \geq 1$ $2n^2 - 6n + 3 \geq 0$

$n^2 - 3n + 1.5 \geq 0$ $n \leq \frac{3}{2}$ $n \geq \frac{3}{2}$

$\Rightarrow \{1\} \cup [2, \infty)$ ✓

الف) $2n^2 - 3n + 1 \geq 0 \Rightarrow (2n-1)(n-1) \geq 0$ (2)

$2n^2 - 3n + 1 \geq 0$ $(2n-1)(n-1) \geq 0$ $(2n-1)(n-1) \geq 0$ $(2n-1)(n-1) \geq 0$

$\Rightarrow (-\infty, \frac{1}{2}) \cup [1, \infty)$

ب) $\frac{2n^2 - 3n + 1}{2n^2 - 3n + 1} \geq \frac{(2n-1)(n-1)}{(2n-1)(n-1)}$ ✓

$\Rightarrow \frac{1}{2} \leq \frac{n-1}{n-1}$ $\frac{1}{2} \leq \frac{n-1}{n-1}$ $\frac{1}{2} \leq \frac{n-1}{n-1}$ $\frac{1}{2} \leq \frac{n-1}{n-1}$

$D \subseteq [\frac{1}{2}, \infty) \cup \{1\} \cup [2, \infty)$ ✓