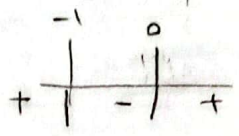


نام: یکتا جانوری

مقطع: نازدهم دبیرستان A

⑤

الف: $x^3 - 3x^2 + 3x$ $\xrightarrow{\text{تجزیه توان فر}}$ $K = \mathbb{R}$ ⑤

ب: $y = \frac{1}{x^2 - 2x} \rightarrow \frac{1}{y} = x^2 - 2x + 1 - 1 \rightarrow \frac{1}{y} = (x-1)^2 - 1 \rightarrow \frac{1+y}{y} = (x-1)^2$
 $x = \sqrt{\frac{1+y}{y}} + 1$

 $K = (-\infty, -1] \cup (-1, +\infty)$

الف: $x^2 - 5x + 1$ $\xrightarrow{\text{ent/2}}$ $K = [4, +\infty)$ ②
 ب: $-x^2 + 4x + 3$ $\xrightarrow{\text{ent/12}}$ $K = (-\infty, 12]$

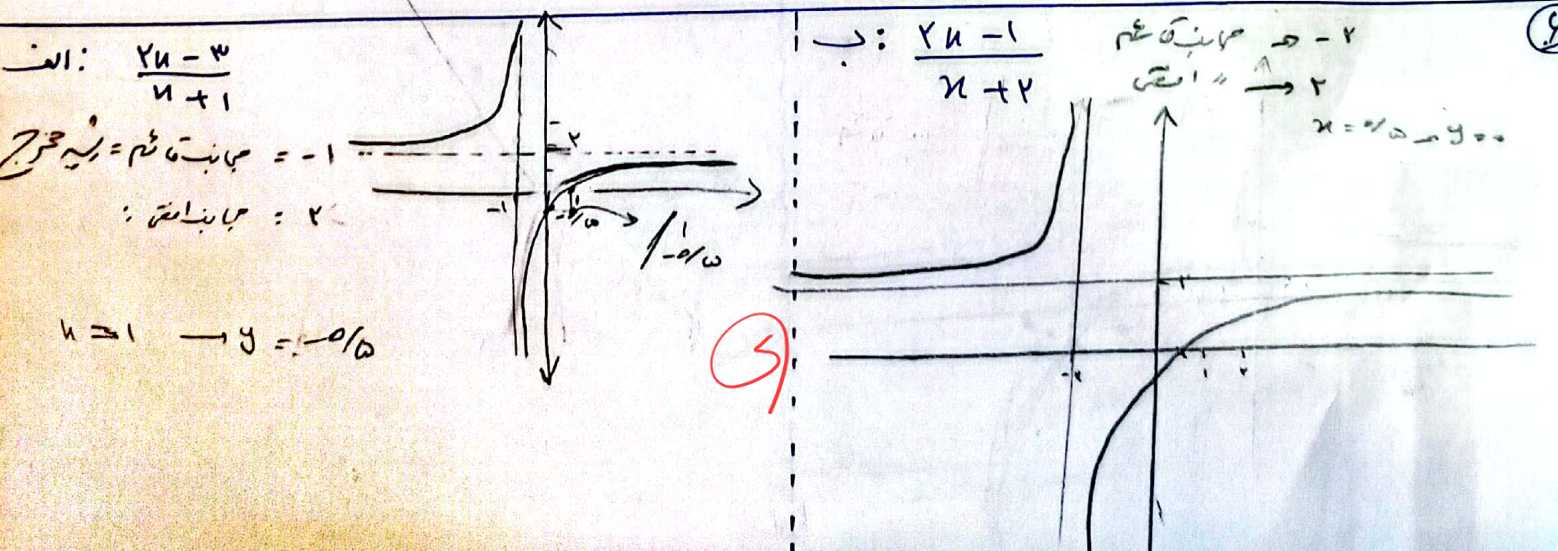
ج: $\sqrt{x^2 - 4x - 3}$ $\xrightarrow{\text{ent/2}}$ $K = [0, +\infty)$
 د: $\sqrt{-x^2 + 4x}$ $\xrightarrow{\text{ent/4}}$ $K = [0, 4]$

الف: $x^3 - 5x^2 + 2x + 1 \rightarrow K = \mathbb{R}$ ③

ج: $\sqrt{x^3 - 4x^2 + 5x + 1} \rightarrow K = [0, +\infty)$ ⑤
 د: $(x^3 - 5x^2 + 2x + 1)^2 \rightarrow K = [0, +\infty)$

الف: $y = \frac{3x+1}{x-2} \rightarrow K = \mathbb{R} - \{2\}$ ④
 ب: $y = \frac{2x+1}{x+1} \rightarrow K = \mathbb{R} - \{1\}$

الف: $y = \sqrt{\frac{2x+5}{x+1}} \rightarrow (-\infty, +\infty) - \{-1\}$ ⑤
 ب: $y = \sqrt{\frac{3x+1}{x-2}} \rightarrow K = [0, +\infty)$



$$1: \sin u + \frac{1}{\sin u} \rightarrow K = (r, +\infty) \cup (-\infty, -r] \quad (V)$$

$$2: \frac{x^r + 1}{x^r} \rightarrow x^r + \frac{1}{x^r} \rightarrow K = (r, +\infty) \cup (-\infty, -r] \quad (S)$$

$$3: \frac{\sqrt[r]{x^r + 1}}{\sqrt[r]{x}} \rightarrow \sqrt[r]{x} + \frac{1}{\sqrt[r]{x}} \rightarrow K = (r, +\infty) \cup (-\infty, -r] \quad (S)$$

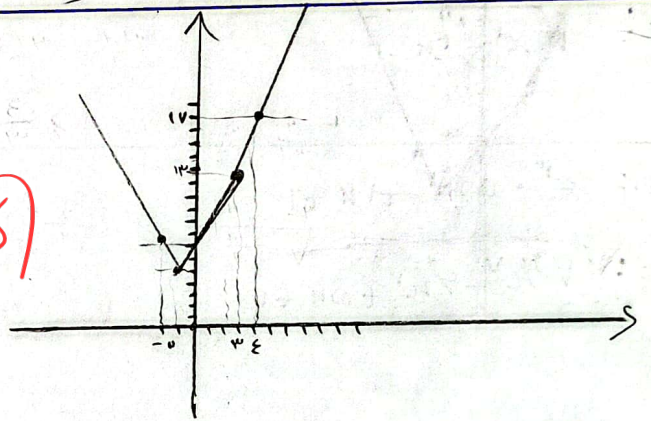
$$4: \sqrt{x} + \frac{1}{\sqrt{x}} \rightarrow (r, +\infty)$$

$$y = x^r + \frac{1}{x^r + r} \xrightarrow{=x, \text{ كسر غير صفر}} \left[\frac{1}{r}, +\infty\right) \quad (S)$$

$$5: \frac{x^r + a}{\sqrt{x^r + b}} \xrightarrow{=x, \text{ كسر غير صفر}} \left[\frac{a}{r}, +\infty\right)$$

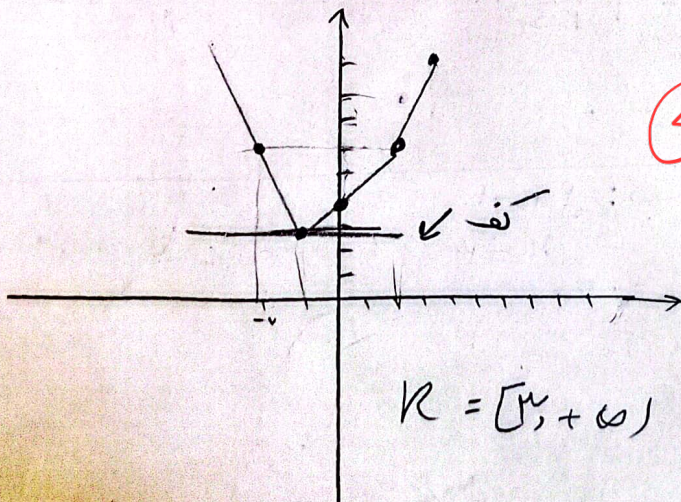
$$y = |u - r| + |ru + \varepsilon|$$

$$\begin{cases} ru + 1 & u > r \quad \frac{u-r}{r} \leq \frac{\varepsilon}{1+r} \quad \frac{\varepsilon}{1+r} \\ ru + v & -\frac{\varepsilon}{r} \leq u \leq r \quad \frac{u-r}{r} \leq \frac{-1}{1+r} \quad \frac{-1}{1+r} \\ -\varepsilon u - 1 & -\frac{\varepsilon}{r} > u \quad \frac{u-r}{r} \leq \frac{-\frac{\varepsilon}{r}}{1+r} \quad \frac{-\frac{\varepsilon}{r}}{1+r} \end{cases}$$



$$\text{الف: } y = |u - r| + |ru + r| \quad K$$

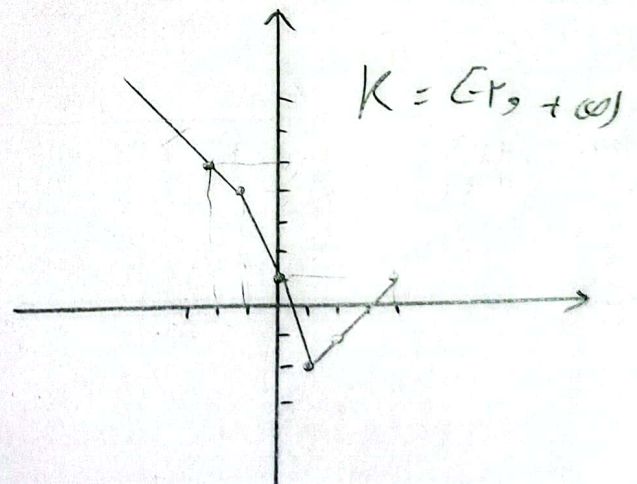
u	-r-1	-r	0	r	1	0
y	1	1	1	1	1	ε



$$K = [r, +\infty)$$

$$\rightarrow y = |ru - r| - |ru + 1| \quad (10)$$

u	-r-1	0	1	r	ε	r
y	0	1	1-r	-1	1	



$$K = (-r, +\infty)$$