

۲۰۰

از دهم رستر (نیجینه)

تکلیف است، ۱۱

ستاس کنده

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

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

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

الف) $f(m) = \{(2, m^2) (2, 1) (-2, m) (-2, m) (2, m+2) (m, 4)\}$

$$m^2 = m + 2$$

$$m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0$$

$$m = 2$$

$$m = -1$$

$$\text{if } m = 2 \rightarrow (2, 1) (2, 4) \times \rightarrow \text{ت.ج. نیست}$$

$$\text{if } m = -1 \rightarrow (2, 1) (2, 1) (-2, -1) (-2, -1) (2, 1) (-1, 4)$$

ب) $g(m) = \{(2, m^2) (2, 1) (m, 4) (2, m+2) (-2, m) (-1, 3)\}$

$$m^2 = m + 2 \rightarrow m^2 - m - 2 = 0 \rightarrow (m-2)(m+1) = 0 \rightarrow \text{if } m = 2 \rightarrow (2, 1) (2, 4) \times$$

$$m = -1 \rightarrow \text{if } m = -1 \rightarrow (-1, 4) (-1, 3) \times$$

$$g(m) \leftarrow \text{ت.ج. نیست}$$

$$f(a) = \begin{cases} a^2 - 1 & a \leq 1 \\ a^2 + b & 1 \leq a \leq 2 \\ a^2 & a > 2 \end{cases}$$

$$\begin{cases} a + b = 0 \\ 2a + b = 1 \end{cases}$$

$$a = 1 \rightarrow b = -1 \rightarrow ab = 1(-1) = -1$$

$$a \times b = ? \quad [-45]$$

$$\text{if } a = 1 \rightarrow a^2 - 1 = a^2 + b$$

$$1 - 1 = a + b \Rightarrow a + b = 0$$

$$\text{if } a = 2 \rightarrow a^2 + b = a^2$$

$$2a + b = 1$$

$$f(a) = \begin{cases} 2a - 3 & a > 1 \\ 2a & a \leq 1 \end{cases}$$

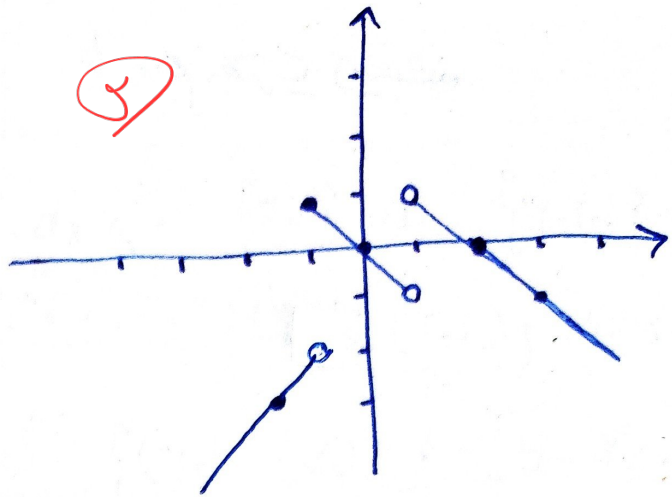
$$2k - 3 = 2 - 3k$$

$$a \quad k = 5 \rightarrow k = \frac{5}{5} = 1$$

$$f(u) = \begin{cases} -u+1 & u > 1 \\ -u & -1 \leq u < 1 \\ u-1 & u < -1 \end{cases}$$

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

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



الف) $ry^r + u^r + 1 = 0 \rightarrow ry^r = -u^r - 1$

$$\left. \begin{matrix} ry_1^r = -u_1^r - 1 \\ ry_2^r = -u_2^r - 1 \end{matrix} \right\} \xrightarrow{u_1 = u_2} ry_1^r = ry_2^r \Rightarrow y_1^r = y_2^r \Rightarrow y_1 = y_2 \rightarrow \text{تابع است}$$

ب) $u^r + ry^r - 2u - 12y + 10 = 0 \Rightarrow (u-1)^r + (ry-3)^r = 0$

$\begin{matrix} \swarrow & \searrow \\ u=1 & ry=3 \end{matrix}$

$\rightarrow \begin{bmatrix} 1 \\ 3 \end{bmatrix} \rightarrow$ نقطه
تابع است

الف) $u \sin y = y \sin u$ - if $u=0 \rightarrow 0 \times \sin y = y \times 0 \rightarrow$ هر چه باشد

$\sin 0 = 0$

تابع است $x \rightarrow$ باشد

ب) $\left(\sqrt{\frac{u}{y}} + \sqrt{\frac{y}{u}} = r \right)^2 \Rightarrow \frac{u}{y} + \frac{y}{u} + 2\sqrt{\frac{u}{y} \times \frac{y}{u}} = r^2$

$\rightarrow \frac{u}{y} + \frac{y}{u} = r^2 \rightarrow \frac{u+y}{uy} = r^2 \rightarrow ray = u+y$

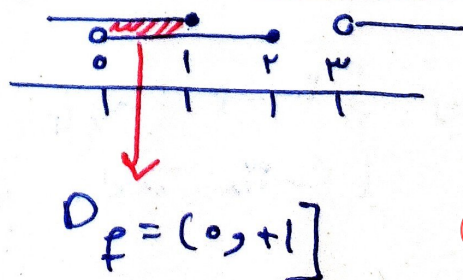
$ray = y(y+1) \rightarrow y+1 = ry \rightarrow \boxed{y=1} \rightarrow u=y$
 $\rightarrow \boxed{u=1}$

تابع است

الف) $y = \sqrt{\frac{u-1}{u-2}} + \sqrt{\frac{2-u}{u}} \rightarrow r$

$\frac{1}{+} \frac{1}{-} \frac{2}{+}$

$\frac{0}{-} \frac{2}{+}$



$$D_f = (0, 1]$$

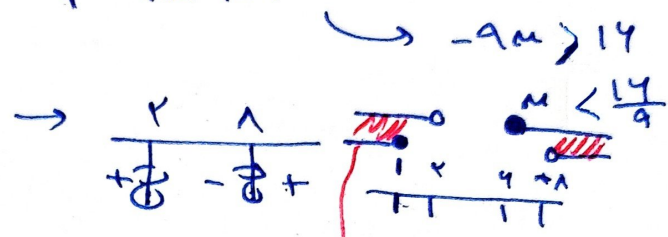
ب) $\sqrt{x} + \sqrt{y-1} = \sqrt{y} \rightarrow \sqrt{y-1} = \sqrt{y} - \sqrt{x}$

① $\sqrt{x} \rightarrow x \geq 0$

② $\sqrt{y} - \sqrt{x} \geq 0 \xrightarrow{\text{سوال}} y - x \geq 0 \rightarrow x \leq y \left\{ D_f = [0, 4] \right.$

الف) $y = \frac{\sqrt{x^2 - 7x + 4}}{\sqrt{x - 6x + 4}} = \frac{\sqrt{(x-1)(x-4)}}{\sqrt{-9x+4}} \rightarrow \frac{1}{+} \frac{4}{-}$

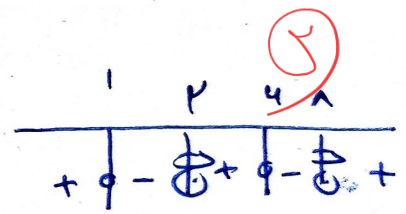
این سوال حالت دوم
آوردیم چون اسبابه تایی وجود دارد و منظور $x^2 - 1 + 14$ است
 $(x-2)(x-1)$



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

در صورتی که بدلیل اسبابه تایی به x نوشته شده است
در صورتی که متن سوال درست باشد و منظور همان x است

ب) $y = \sqrt{\frac{x^2 - 7x + 4}{x^2 - 6x + 4}} = \sqrt{\frac{(x-1)(x-4)}{(x-2)(x-1)}}$



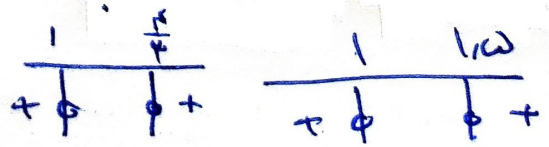
$D_f = (-\infty, 1] \cup (2, 4] \cup (1, +\infty)$

الف) $\sqrt{\frac{x^2 - 7x + 4}{x^2 - 6x + 4}}$

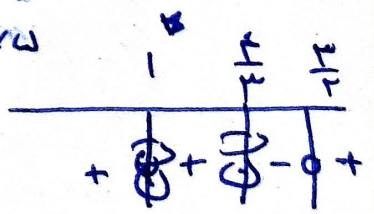
$D_f = (-\infty, 1) \cup [\frac{4}{3}, +\infty)$



$x^2 - 7x + 4 \geq 0 \rightarrow x^2 - 7x + 4 \geq 0$
 $(x-2)(x-4) \geq 0$
 $1 = \frac{4}{3}$
 $\frac{4}{3} = 1.33$



ب) $\sqrt{\frac{x^2 - 7x + 4}{x^2 - 6x + 4}} \rightarrow \frac{1}{2} = \frac{1}{2} \rightarrow \frac{4}{3} = 1.33$
 $(x-2)(x-4)$
 $(x-2)(x-4)$



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