

تکلیف ۱

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

$\{(1,2)(1,2)\}$
 دایره مشترک

2- $f(x) = \{(1,2), (2,3), (-1,2), (-2,3), (1,2), (2,3)\}$
 $n^2 = n+2 \Rightarrow n^2 - n - 2 = 0 \Rightarrow (n-2)(n+1) = 0 \Rightarrow$
 $n = 2$ غلط
 $n = -1$ غلط

$n = -1$
 $f(x) = \{(1,2), (2,3), (-1,2), (-2,3), (1,2), (2,3)\}$
 $n^2 = n+2 \Rightarrow n = 2$ غلط
 $n = -1$ غلط

3- $f(x) = \begin{cases} x^2 - 1 & x \leq 1 \\ ax + b & 1 < x \leq 2 \\ x^2 & x > 2 \end{cases}$
 (تابعی صوری) در هر دو راسه اول یکپارچه جواب نهاده
 $1 - 1 = a + b = 0$
 $ra + b = 1$
 $a = 1$
 $b = -1$

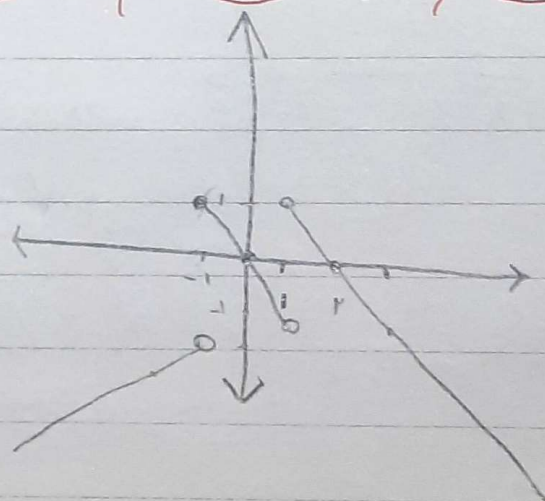
$ab = -1$

4- $f(x) = \begin{cases} 2x - 3 & x > k \\ 4 - 2x & x \leq k \end{cases}$
 $2k - 3 = 4 - 2k$
 $4k = 7 \Rightarrow k = 1.75$

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

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

$RL = (-\infty, 1]$



$$\left. \begin{aligned} x^2 &= -2y_1^2 - 1 \\ x^2 &= -2y_2^2 - 1 \end{aligned} \right\} \rightarrow y_1^2 = y_2^2 \rightarrow y_1 = y_2$$

الف) $2y^2 + x^2 + 1 = 0 \Rightarrow 2y^2 = -x^2 - 1$

تابع است

$y_1 = y_2$

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الف) $(\sqrt{\frac{x}{y}} + \sqrt{\frac{y}{x}})^2 = (2)^2 \Rightarrow \frac{x}{y} + \frac{y}{x} + 2 = 4$

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

$(x - y)^2 = 0$

$x = y$

تابع است

این دو تابعی است

الف) $x \sin y = y \sin x \Rightarrow x = 0$

$y \sin 0 = 0 \Rightarrow y$

هر مقدار دلخواه برای x

تابع است

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$x^2 + 4y^2 - 2x - 12y + 10 = 0$

$(x - 1)^2 + (2y - 3)^2 = 0$

جمع 2 عدد همواره نامنفی صفر است هر 2 صفر

تابع است

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الف) $y = \sqrt{\frac{x-1}{x-3}} + \sqrt{\frac{x-3}{x-1}} \Rightarrow D_f = I \cap I_f \Rightarrow D_f = (0, 1]$

I) $\frac{1}{x-3} + \frac{1}{x-1}$

II) $\frac{x-3}{x-1}$

کدی همواره نامنفی است $\sqrt{x-1} = y \Rightarrow \sqrt{x} = \sqrt{y-1} = \sqrt{3}$

$y' = (\sqrt{3} - \sqrt{x})$ $\sqrt{3} - \sqrt{x} > 0 \Rightarrow \sqrt{3} > \sqrt{x}$

$x \leq 3$

$D_f = [0, 3]$

1 / 1

الف) $\frac{\sqrt{x^2 - 7x + 4}}{\sqrt{x^2 - 10x + 14}} \Rightarrow \frac{\sqrt{x^2 - 7x + 4}}{\sqrt{14 - 9x}}$ $\frac{(x-4)(x-1)}{+ \quad - \quad - \quad +}$ -9

$D_f = (-\infty, 1] \cup (14, \infty)$ $\frac{14}{9}$
+ | -

ب) $\sqrt{\frac{x^2 - 7x + 4}{x^2 - 10x + 14}}$

$x^2 - 7x + 4$	+	-	-	+	+
$x^2 - 10x + 14$	-	+	-	-	+
y	+	-	+	-	+

$D_f = (-\infty, 1] \cup (2, 4] \cup (14, +\infty)$

	+	-	+	-	+
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الف) $y = \sqrt{\frac{2x^2 - 5x + 2}{3x^2 - 7x + 4}} \Rightarrow \frac{x^2 - 5x + 4}{(x - \frac{5}{2})(x - 2)}$

$\frac{x^2 - 7x + 12}{(x - \frac{7}{2})(x - 4)}$

$D_f = (-\infty, 1) \cup [\frac{14}{3}, +\infty)$

ب) $y = \sqrt{\frac{2x^2 - 5x + 2}{3x^2 - 7x + 4}}$

$2x^2 - 5x + 2$	+	-	-	+	+
$3x^2 - 7x + 4$	+	-	+	+	+
y	+	+	+	-	+

$(x - \frac{5}{2})(x - 1)$

$(x - \frac{7}{2})(x - 1)$

$D_f = \mathbb{R} - [\frac{5}{2}, \frac{14}{3}) \cup [\frac{14}{3}, \infty)$

$D_f = (-\infty, \frac{5}{2}) \cup [\frac{14}{3}, +\infty)$