

سؤال ٤

$$ع) y = \frac{\tan x + 1}{\cot x - 1}$$

tan و cot با این ترتیب بود

$$د) y = \frac{\sin x + 1}{\sin x - 1}$$

$$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right\}$$

سؤال ٤

الف) $x^2 - 5x + 4 > 0 \rightarrow (x-1)(x-4) > 0$

ب) $x^2 - 4x + 5 < 0 \rightarrow (x-1)(x-5) < 0$

ج) $x^2 + 4x + 5 > 0 \rightarrow (x+1)(x+5) > 0$

د) $x^2 - 7x + 6 < 0 \rightarrow (x-1)(x-6) < 0$

سؤال ٥

الف) $\frac{x^2 - 3x + 2}{x - 5} < 0 \rightarrow \frac{(x-1)(x-2)}{(x-5)}$

ب) $\frac{x^2 - 1}{x^2 - 4x + 5} \geq 0 \rightarrow \frac{(x+1)(x-1)}{(x-2)(x-1)}$

سؤال ٦

الف) $y = \sqrt{\frac{x^2 - 4x + 4}{x^2 - 1}}$

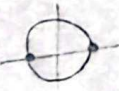
سؤال ٣

$$ج) y = \frac{\tan x + 1}{\cot x - 1}$$

$$I: \cot x - 1 \neq 0 \rightarrow \cot x \neq 1 \rightarrow$$



$$II: \sin x \neq 0 \rightarrow$$



$$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, k\pi \right\}$$

$$د) g = \frac{\sin x + 1}{\sqrt{\sin^2 x - 3}}$$

$$\sqrt{\sin^2 x - 3} \neq 0 \rightarrow \sin^2 x \neq \frac{3}{4} \rightarrow \sin x \neq \pm \frac{\sqrt{3}}{2}$$

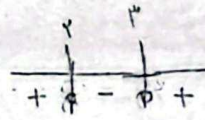


$$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{3}, k\pi + \frac{2\pi}{3} \right\}$$

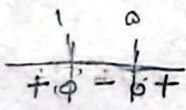
(سؤال ٤)

$$D_f = (-\infty, 1) \cup (3, +\infty)$$

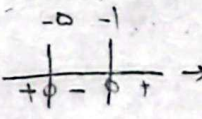
$$الف) x^2 - 5x + 4 > 0 \rightarrow (x-1)(x-4) > 0$$



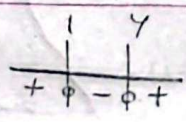
$$ب) x^2 - 4x + 5 < 0 \rightarrow (x-1)(x-5) < 0$$



$$ج) x^2 + 4x + 5 > 0 \rightarrow (x+1)(x+5) > 0$$

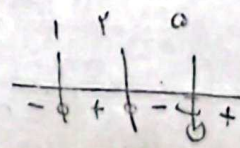


$$د) x^2 - 4x + 4 < 0 \rightarrow (x-1)(x-4) < 0$$

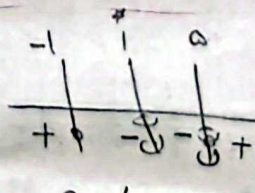


سؤال ٥

$$الف) \frac{x^2 - 3x + 2}{x - 5} < 0 \rightarrow \frac{(x-1)(x-2)}{(x-5)}$$



$$ب) \frac{x^2 - 1}{x^2 - 4x + 5} \geq 0 \rightarrow \frac{(x+1)(x-1)}{(x-5)(x-1)}$$

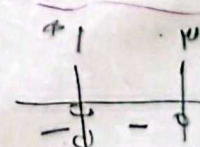


$$\Rightarrow D_f = (-\infty, 1) \cup (5, +\infty)$$

(سؤال ٦)

$$الف) y = \sqrt{\frac{x^2 - 4x + 4}{x^2 - 1}}$$

$$\frac{(x-1)(x-2)}{x^2 - 1} \geq 0$$



$$\Rightarrow D_f = [2, +\infty)$$

(سؤال ٢)

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ب) $y = \sqrt{\frac{x^2 - 4x + 3}{x^2 - 1}} \rightarrow x^2 - 1 \neq 0 \rightarrow x^2 \neq 1 \rightarrow x \neq \pm 1 \Rightarrow D_f = \mathbb{R} - \{\pm 1\}$

(سؤال ٣)

الف) $y = \log(x^2 - 3x)$

I: $x^2 - 3x > 0 \rightarrow x^2 > 3x \rightarrow x^2 - 3x > 0 \rightarrow x(x - 3) > 0$

$D_f = (-\infty, 0) \cup (3, +\infty) \Leftarrow \frac{0}{+} - \frac{+}{+} +$

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ب) $\log \frac{14 - x^2}{|x| - 2} \rightarrow I: 14 - x^2 > 0 \rightarrow 14 > x^2 \rightarrow -\sqrt{14} < x < \sqrt{14}$

II: $|x| - 2 > 0 \rightarrow |x| > 2 \rightarrow x > 2$
 $x < -2$

امداد دست-نک

$\Rightarrow D_f = (-\sqrt{14}, -2) \cup (2, \sqrt{14}) - \{\pm \sqrt{14}\}$

III: $|x| - 2 \neq 1 \rightarrow |x| \neq 3 \rightarrow x \neq \pm 3$

ج) $y = \log \frac{x^2 - 7x + 12}{10 - x} \rightarrow I: \frac{x^2 - 7x + 12}{x - 3} > 0 \rightarrow \frac{(x - 3)(x - 4)}{(x - 3)} \rightarrow \frac{x - 4}{1} > 0$
 $D = (4, +\infty)$
 II: $10 - x > 0 \rightarrow -x > -10 \rightarrow x < 10$
 III: $10 - x \neq 1 \rightarrow -x \neq -9 \rightarrow x \neq 9 \Rightarrow D_f = (4, 10) - \{9\}$

د) $y = \sqrt{x^2 - 11x + 28} + \log \sqrt{34 - x^2}$
 I: $x^2 - 11x + 28 > 0 \rightarrow (x - 4)(x - 7) > 0$
 $D = (-\infty, 4) \cup (7, +\infty)$
 II: $34 - x^2 > 0 \rightarrow 34 > x^2 \rightarrow -\sqrt{34} < x < \sqrt{34}$

$D_f = (0, 4) - \{1\}$

III: $x > 0, x \neq 1 \Rightarrow D = (-\sqrt{34}, \sqrt{34}) \cup [7, +\infty) - \{1\}$
 بین جواب ها اشتراك بگیر

(سؤال ٤)

$y = \frac{x^2 - x}{x^2 + x} \rightarrow \frac{x(x - 1)}{x(x + 1)}$
 روش جدول: $\frac{-1}{+} - \frac{0}{-} - \frac{1}{+} \Rightarrow D_f = (-\infty, -1) \cup [1, +\infty)$

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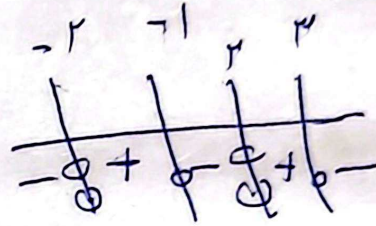
روش دیگر:

	-1	0	1
$x(x - 1)$	-	-	+
$x(x + 1)$	-	+	+
$P(x)$	+	-	+

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

(سؤال ٩)

$$y = \sqrt{\frac{x - f(x)}{f(x)}} \rightarrow \frac{x - f(x)}{f(x)} \geq 0$$



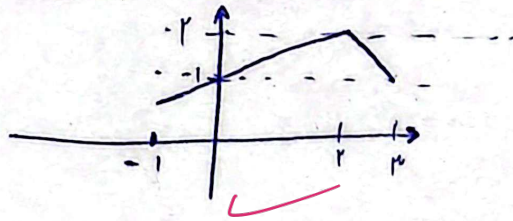
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$$\Rightarrow D_f = (-2, -1] \cup (1, 2]$$

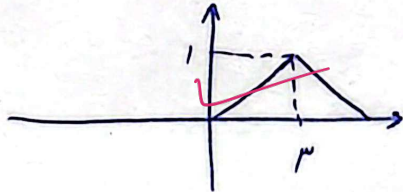
(سؤال ١٥)

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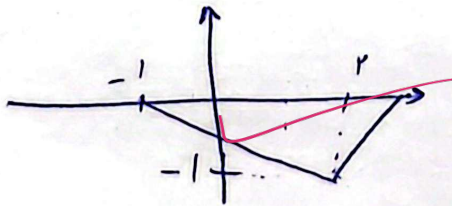
الف) $f(x) + 1$



ب) $f(x-1)$



ج) $-f(x)$



د) $f(x+1) + 1$

