

کلاس / دختر دوم

پایه تشریحی کتب شماره ۶

نام و نام خانوادگی: آلاء شامی

۱۴۱۵

الف) $y = \frac{x^2 + x}{x^2 - 10x^2 + 11x - 15}$

مع ضرایب و ...
محلست قیاسی از اینها است و عبارت $x-1$ بخش می شود

$$\begin{array}{r} 10x^2 - 10x^2 + 11x - 15 \\ -(x^2 - 10x^2) \\ \hline -19x^2 + 11x - 15 \\ -(-19x^2 + 19x) \\ \hline 18x - 15 \\ - (18x - 18) \\ \hline 0 \end{array}$$

$(x-5)(2x-3)$
و باقی $\frac{3}{x}$

$D_f = R - \left\{ 1, \frac{3}{x} \right\}$

ب) $y = \frac{x^2 + x}{x^2 - 10x^2 + 11x - 15}$

عوض کنیم $x^2 - 10x^2 + 11x - 15$ با $x^2 - 10x^2 + 11x - 15$
و باقی $\frac{3}{x}$ است و عبارت $x-1$ بخش می شود

$$\begin{array}{r} 10x^2 - 10x^2 + 11x - 15 \\ -(x^2 - 10x^2) \\ \hline -19x^2 + 11x - 15 \\ -(-19x^2 + 19x) \\ \hline 18x - 15 \\ - (18x - 18) \\ \hline 0 \end{array}$$

$D_f = R - \left\{ -1, 2, \frac{3}{x} \right\}$

الف) $y = \frac{x^2 + x}{x^2 - 10x^2 + 11x - 15}$

$x - \sqrt{3-2x} \neq 0 \rightarrow \sqrt{3-2x} \neq x \xrightarrow{(\cdot)}$
 $x^2 - 3 + 2x \neq x^2 \rightarrow 3 - 2x \neq x^2$

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$x^2 + 2x - 3 \neq 0 \rightarrow (x+3)(x-1) \rightarrow x \neq -3, x \neq 1$
اگر عدد را انتخاب کنیم $\rightarrow x = -3$
جواب: $x \neq -3, x \neq 1$

ب) $y = \frac{x^2 + x}{x^2 - 10x^2 + 11x - 15}$

$x - \sqrt{3-2x} = 0 \rightarrow \sqrt{3-2x} = x \xrightarrow{(\cdot)}$
 $0 = x^2 - 3x + 2 \rightarrow 0 = (x-1)(x-2) \rightarrow x = 1, x = 2$

$D_f = R - \left\{ 1, 2 \right\}$

الف) $y = \frac{\sin x}{x \cos x - 1}$

$x \cos x - 1 \neq 0 \rightarrow x \cos x \neq 1 \rightarrow \cos x \neq \frac{1}{x}$
 $D_f = R - \left\{ 2k\pi + \frac{\pi}{2}, 2k\pi + \frac{5\pi}{2} \right\}$

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ب) $y = \frac{\cos x + 1}{x \sin x + 1}$

$x \sin x + 1 \neq 0 \rightarrow x \sin x \neq -1 \rightarrow \sin x \neq -\frac{1}{x}$
 $D_f = R - \left\{ 2k\pi + \frac{3\pi}{2}, 2k\pi + \frac{7\pi}{2} \right\}$

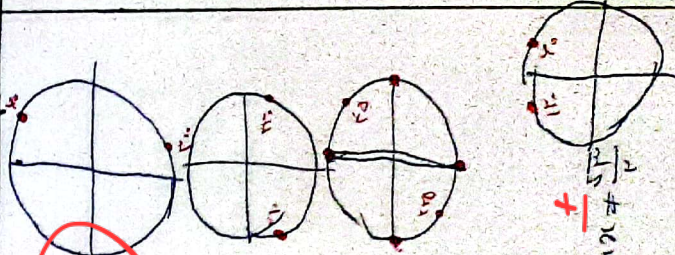
ج) $y = \frac{\tan x + 1}{\cot x - 1}$

$\cos x \neq 0 \rightarrow \sin x \neq 0$
 $\frac{\cos x}{\sin x} - 1 \neq 0 \rightarrow \frac{\cos x}{\sin x} \neq 1 \rightarrow \frac{\cos x}{\sin x} \neq 1 \rightarrow \frac{\cos x}{\sin x} \neq 1$
 $\frac{\cos x}{\sin x} \neq 1 \rightarrow \cos x \neq \sin x$

$D_f = R - \left\{ \frac{\pi}{4}, \frac{5\pi}{4} \right\}$

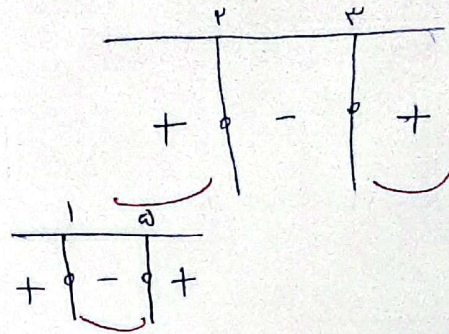
د) $y = \frac{\sin x + 1}{x \sin x - 2}$

$x \sin x - 2 \neq 0 \rightarrow x \sin x \neq 2 \rightarrow \sin x \neq \frac{2}{x}$
 $D_f = R - \left\{ 2k\pi + \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2} \right\}$



الف) $x^2 - 5x + 6 > 0 \rightarrow (x-2)(x-3)$
 $\xrightarrow{2} \xrightarrow{3}$

$D_f = (-\infty, 2) \cup (3, +\infty)$

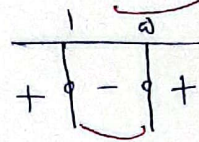


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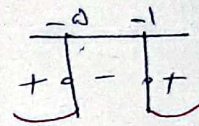
ب) $x^2 - 2x + 5 < 0 \rightarrow (x-1)(x-5)$
 $\xrightarrow{1} \xrightarrow{5}$

$D_f = (1, 5)$



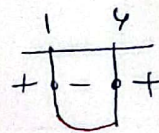
ج) $x^2 + 4x + 5 \geq 0 \rightarrow (x+1)(x+5)$
 $\xrightarrow{-1} \xrightarrow{-5}$

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



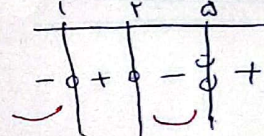
د) $x^2 - 7x + 6 \leq 0 \rightarrow (x-1)(x-6)$
 $\xrightarrow{1} \xrightarrow{6}$

$D_f = [1, 6]$



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

$D_f = (-\infty, 1) \cup (2, 5)$



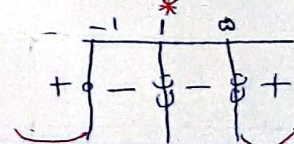
(۳)

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

$x^2 - 1 \geq 0 \rightarrow (x-1)(x+1)$
 $\xrightarrow{-1} \xrightarrow{1}$

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

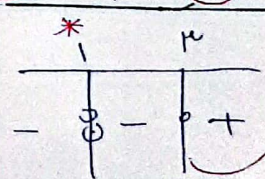


الف) $y = \sqrt{\frac{x^2 - 4x + 3}{x^2 - 1}}$

$D_f = [3, +\infty)$

$x^2 - 1 \neq 0 \rightarrow x \neq \pm 1$

$(x-3)(x-1)$
 $\xrightarrow{3} \xrightarrow{1}$



ب) $\sqrt{\frac{x^2 - 4x + 3}{x^2 - 1}}$

چون مرتبه فرد است دامنه R است ولی مخرج نباید صفر شود.

$x^2 - 1 \neq 0 \rightarrow x \neq \pm 1$

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

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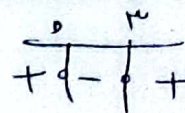
کلاس : (دستور هم)

پاسخنامه ترمیمی تالیف شده :

نام و نام خانوادگی : آلا رسا پیری

الف) $y = \log(x^2 - 3x) > 0$

$x(x-3) > 0$



$D_f = (-\infty, 0) \cup (3, +\infty)$

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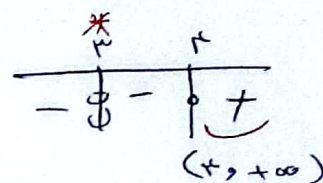
ب) $y = \log \frac{14-x^2}{|x|-2} > 0$
 $|x|-2 \neq 0$

$14-x^2 > 0 \rightarrow x^2 < 14 \rightarrow -\sqrt{14} < x < \sqrt{14}$
 $|x|-2 > 0 \rightarrow |x| > 2 \rightarrow x > 2 \text{ or } x < -2$
 $|x|-2 \neq 0 \rightarrow |x| \neq 2 \rightarrow x \neq \pm 2$

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

ج) $y = \log \frac{x^2-5x+12}{10-x} > 0$
 $10-x \neq 0$

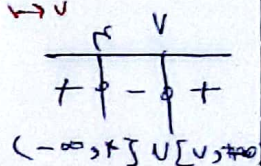
$x^2-5x+12 \rightarrow (x-3)(x-4)$
 $10-x > 0 \rightarrow x < 10$
 $10-x \neq 0 \rightarrow x \neq 10$



$D_f = (3, 4) \cup (10, +\infty) - \{ 10 \}$

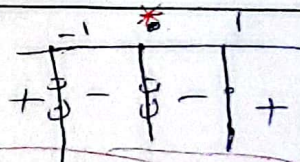
د) $y = \sqrt{x^2-11x+28} + \log \frac{\sqrt{32-x^2}}{x} > 0$
 $x \neq 0$

$x^2-11x+28 > 0 \rightarrow (x-4)(x-7)$
 $32-x^2 > 0 \rightarrow x^2 < 32 \rightarrow -\sqrt{32} < x < \sqrt{32}$
 $x > 0$
 $x \neq 1$



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

$y = \frac{x^2-x}{x^2+x} \rightarrow \frac{x(x-1)}{x(x+1)}$
 $x \neq 0$



راه سریع :

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

	-1	0	1
x^2-x	+	+	-
x^2+x	+	+	+
$\frac{x^2-x}{x^2+x}$	+	+	-

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

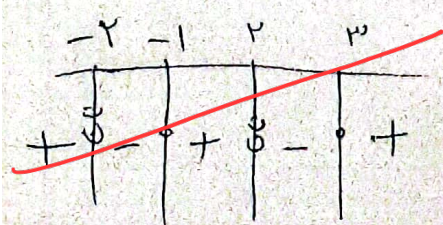
راه آسان تر :

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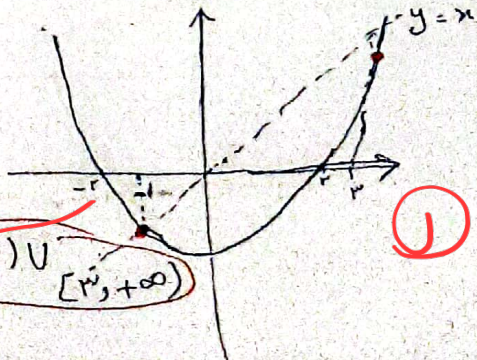
$y = \sqrt{\frac{x-f(x)}{f(x)}} > 0$
 $f(x) \neq 0$

$x-f(x)=0 \rightarrow x=f(x)$
 $\rightarrow 3, -1$

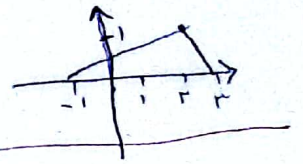
$f(x)=0 \rightarrow -2, 2$



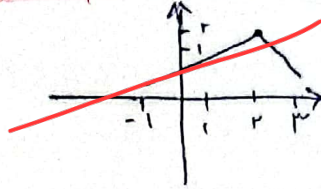
$D_f = (-\infty, -2) \cup (-1, 2) \cup [3, +\infty)$



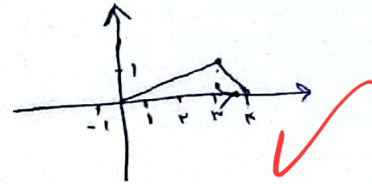
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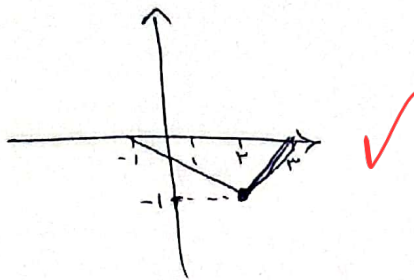
الف) $f(x) + 1$



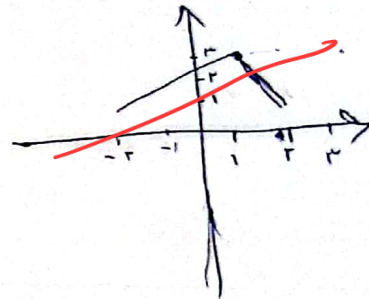
ب) $f(x-1)$



ج) $-f(x)$



د) $f(x+1) + 2$



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