

Subject:
Date:

19 آزمون!

استاذنا

سوال 1

الف) $x+4$ $2x^3 - 2x^2 + 31x - 15 \mid x-1$ (2)
 $(x-1)(5x^2 - 14x + 15) \neq 5x^2 + 5x$ $2x^2 - 14x + 15$
 $x=1$

$$x = \frac{-(-14) \pm \sqrt{14^2 - 4 \cdot 2 \cdot 15}}{2 \cdot 2} = \frac{14 \pm \sqrt{196 - 120}}{4} = \frac{14 \pm \sqrt{76}}{4} = \frac{14 \pm 2\sqrt{19}}{4} = \frac{7 \pm \sqrt{19}}{2}$$

$\frac{7}{2}$ $\frac{\sqrt{19}}{2}$

$D_f = \mathbb{R} - \{1\}, \left\{\frac{7 \pm \sqrt{19}}{2}\right\}$

ب) $x+3$ $3x^3 - x^2 - 11x - 5 \mid x+1$
 $(x+1)(3x^2 - 5x - 5) \neq 3x^2 - 5x$ $3x^2 - 5x - 5$
 $x = \frac{-(-5) \pm \sqrt{5^2 - 4 \cdot 3 \cdot (-5)}}{2 \cdot 3} = \frac{5 \pm \sqrt{25 + 60}}{6} = \frac{5 \pm \sqrt{85}}{6}$
 $b^2 - 4ac$ $\frac{+19}{4} = 2$ $\frac{-5x^2 - 11x - 5}{-5x^2 + 5x}$
 $14 - 15x^2 - 5 = 44$ $\frac{-5x - 5}{+5x - 5}$
 $D_f = \mathbb{R} - \{-1\}, \left\{\frac{5 \pm \sqrt{85}}{6}\right\}$

ب) $\sqrt{3x-2} \geq 0$ $x - \sqrt{3x-2} \neq 0$ (2)
 $3x \geq 2$ $x \neq \sqrt{3x-2}$ (1)
 $x \geq \frac{2}{3}$ $x^2 + 3x - 2$ $3 - 2x \geq 0$ $2x \leq 3$
 $(x-1)(x-5) \neq 0$ $x \leq \frac{3}{2}$
 $D_f = \left[\frac{2}{3}, 1\right) \cup (1, 2) \cup (2, +\infty)$ $x - \sqrt{3x-2} \neq 0$
 $x^2 \neq 3x - 2$
 $x^2 + 3x - 2 \neq 0$
 $(x-1)(x+5)$
 $(1) \quad (-5)$
 $D_f = (-\infty, 1) \cup (1, \frac{3}{2}]$

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سوال 3

الف) $Y \cos x - 1 \neq 0$ $Y \cos x \neq 1$ $\cos x \neq \frac{1}{Y}$

$$D_f = \mathbb{R} - \left\{ \frac{\pi}{Y} + YK\pi, \frac{6\pi}{Y} + YK\pi \right\}$$

ب) $Y \sin x + 1 \neq 0$ $\sin x \neq -\frac{1}{Y}$

$$D_f = \mathbb{R} - \left\{ \frac{7\pi}{4} + YK\pi, \frac{11\pi}{4} + YK\pi \right\}$$

ج) $\frac{\sin}{\cos} \neq 0$

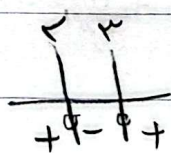
$$\cot x - 1 \neq 0 \quad \cot x \neq 1$$

$$D_f = \{ K\pi, \frac{\pi}{Y} + K\pi, \frac{\pi}{\epsilon} + K\pi \}$$

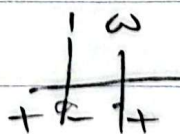
د) $f \sin^2 x - r \neq 0$ $f \sin^2 x \neq r$ $\sin^2 x \neq \frac{r}{f}$ $\sin x = \pm \sqrt{\frac{r}{f}}$

$$D_f = \mathbb{R} - \left\{ K\pi \pm \frac{\pi}{2} \right\}$$

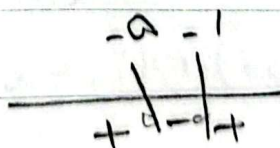
الف) $(x+r)(x-r) > 0$

سوال 4

 $D_f = (-\infty, -r) \cup (r, +\infty)$

ب) $x^2 - 4x + a < 0$
 $(x-1)(x-a)$

سوال 5

 $D_f = (1, a)$

ج) $(x+1)(x+a) \geq 0$

سوال 6


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

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$$1) \quad (x-1)(x-4) \leq 0$$

$$\begin{array}{c|c|c} 1 & 4 & \\ \hline + & - & + \end{array} \quad D_f = [1, 4]$$

$$\text{الف) } \frac{(x-1)(x-2)}{x-5} < 0$$

$$\begin{array}{c|c|c|c} 1 & 2 & 5 & \\ \hline - & + & - & + \end{array}$$

سوال ۵
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ب)

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

$$\text{ب) } \frac{(x+1)(x-1)}{(x-1)(x-5)} \geq 0$$

$$\begin{array}{c|c|c|c} -1 & 1 & 5 & \\ \hline + & - & - & + \end{array}$$

انت-کن!

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

$$\text{الف) } x^3 - 1 \neq 0$$

$$x \neq 1$$

$$x \geq 3$$

$$\frac{(x-1)(x-3)}{(x-1)(x^2+x+1)}$$

سوال ۴
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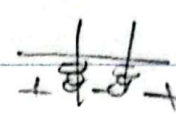
$$\begin{array}{c|c|c} 3 & -1 & \\ \hline - & - & + \end{array}$$

$$D_f = [3, +\infty)$$

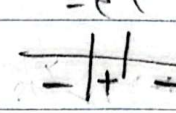
$$\text{ب) } x^3 - 1 \neq 0 \quad x^3 \neq 1 \quad x \neq 1, -1$$

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

MEAGH

الف) $x^2 - 3x > 0$ $x(x-3) > 0$  سوال ٢

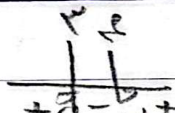
$D_f = (-\infty, 0) \cup (3, +\infty)$ 

ب) $(x-2)(x+2) > 0$  $(-\infty, -2) \cup (2, +\infty)$

$|x| - 2 > 0$ $|x| > 2 \rightarrow \begin{matrix} x < -2 \\ x > 2 \end{matrix} \rightarrow (-\infty, -2) \cup (2, +\infty)$

$|x| - 2 \neq 1$ $|x| \neq 3$ $x \neq \pm 3$

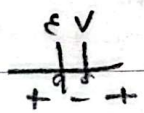
$D_f = (-\infty, -3) \cup (-1, 3) - \{\pm 3\}$

ج) $(x-2)(x-4) > 0$ 

١. $-x > 0$ $x < 0$

$D_f = (-\infty, 0) - \{0\}$

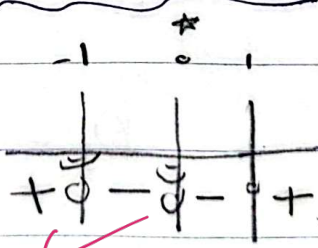
١. $-x \neq 1$ $x \neq -1$

د) $(x-5)(x-7) > 0$  $(-\infty, 5) \cup (7, +\infty)$

$(4-x)(4+x) > 0$ $(-4, 4)$

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

$x > 0$ $x \neq 1$

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

سوال ٢

	-1	0	1	
x	-	-	+	+
$x-1$	-	-	-	+
x	-	-	+	+
$x+1$	-	+	+	+
	+	-	-	+

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

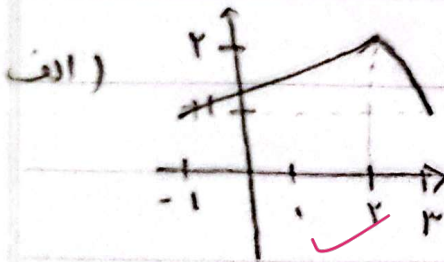
$$-f(x) \neq 0 \quad x \neq \frac{-2}{4}$$

	-2	-1	1	3
$x - f(x)$	-	+	+	-
$f(x)$	+	0	-	+
	-	+	-	-

سوال ۱۹

(۲)

$$D_f(-2, -1] \cup (1, 3)$$



سوال ۱۵

(۲)

ج)

