

پستہ خانہ : ۶۵۰۰۰۰ لاہور : پنجشنبہ

61 ①

الف) $\frac{x+1}{x^3 - 2x^2 + 3x - 10}$

$\rightarrow \frac{x^3 - 2x^2 + 3x - 10}{x^3 - 2x^2} \mid \frac{x-1}{x^3 - 2x^2 + 10x - 10} \Rightarrow$

$- \quad -10x + 10$

$- \quad -10x + 10$

$\quad \quad 0$

$\Rightarrow (x-1)(x^2 - 2x + 10)$

$\Rightarrow (x - \frac{1}{2})(x - \frac{9}{2})$

$$\Rightarrow \frac{x + f \rightarrow -f}{(x - \frac{f}{r})(x - \frac{r}{r})(x - 1)} \rightarrow \frac{x}{y} \mid \begin{array}{c} -f \\ \frac{f}{r} \end{array} \begin{array}{c} -\frac{r}{r} \\ \frac{r}{r} \end{array} \begin{array}{c} -\frac{r}{r} \\ \frac{r}{r} \end{array}$$

$$(x+3)(x-4)(x-5)$$

$$\Rightarrow (x+1)(x-4)(x-5)$$

$$\begin{array}{r|l} x+1 & x^3 - 4x^2 - 5x - 20 \\ \hline & x^3 - x^2 - 5x - 20 \\ \hline & 3x^2 - 4x - 20 \end{array}$$

$$\Rightarrow x^2 - 4x - 20$$

$$(x-4)(x+5)$$

$$(x-2)(x+4)$$

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

Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Mon	Tue							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31

(۲) الف

الف) $y = \frac{x+1}{x-\sqrt{3-2x}}$

$$x - \sqrt{3-2x} \neq 0 \rightarrow x \neq \sqrt{3-2x} \rightarrow x^2 \neq 3-2x$$

$$\{x^2 + 2x - 3 \neq 0 \rightarrow (x+3)(x-1)\}$$

$$\{x-2 \neq 0 \rightarrow x \neq 2\}$$

$$D_f = (-\infty, \frac{3}{2}] - \{1, 2\}$$



ب) $y = \frac{x+2}{x-\sqrt{3x-2}}$

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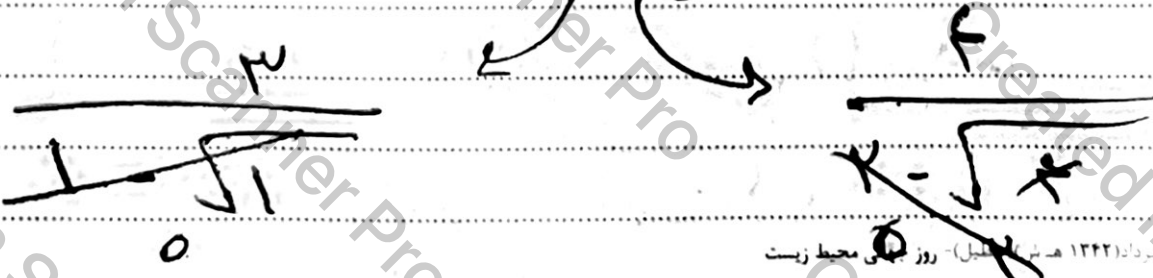
$$x \neq \sqrt{3x-2} \rightarrow x^2 \neq 3x-2 \rightarrow x^2 - 3x + 2 \neq 0$$

$$(x-1)(x-2)$$

$$3x-2 \geq 0 \rightarrow 3x \geq 2 \rightarrow x \geq \frac{2}{3}$$

$$1 \leftarrow 2 \leftarrow$$

$$D_f = [\frac{2}{3}, +\infty) - \{1, 2\}$$



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

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

$D_f = \mathbb{R} - \left\{ xk\pi \pm \frac{\pi}{4} \right\}$ x_0, x_1

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

$D_f = \mathbb{R} - \left\{ xk\pi - \frac{\pi}{4}, xk\pi + \frac{3\pi}{4} \right\}$ x_0, x_1

ج) $\cot x - 1 \neq 0 \rightarrow \cot x \neq 1$ x_0, x_1

$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{4}, \frac{3\pi}{4} + k\pi \right\}$ x_0, x_1

د) $x^2 \sin x - x \neq 0 \rightarrow x^2 \sin x \neq x \rightarrow \sin x \neq \frac{x}{x^2}$

$D_f = \mathbb{R} - \left\{ k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2} \right\}$ $\sin \neq \frac{\sqrt{x}}{x}$ x_0, x_1

الف) $x^2 - 2x + 4 > 0 \rightarrow (x-1)(x-3) > 0$

$\begin{array}{c|cc} x & 1 & 3 \\ \hline y & + & - \end{array}$ $D_f = (-\infty, 1) \cup (3, +\infty)$

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

$\begin{array}{c|cc} x & 1 & 5 \\ \hline y & + & - \end{array}$ $D_f = (1, 5)$

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

$\begin{array}{c|cc} x & -1 & -5 \\ \hline y & + & - \end{array}$ $D_f = (-\infty, -5) \cup (-1, +\infty)$

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

$$2) \frac{x^2 - 4x + 5}{x^2 - 4x + 5} \leq 0 \rightarrow D_f = [1, 4]$$

$$الف) \frac{x^2 - 4x + 5}{x^2 - 4x + 5} \leq 0$$

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

$$\frac{x}{y} \mid \begin{array}{c} 1 \\ 2 \\ 3 \end{array} \begin{array}{c} 4 \\ 5 \\ 6 \end{array}$$

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

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

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

$$\frac{x}{y} \mid \begin{array}{c} -1 \\ 1 \\ 2 \end{array} \begin{array}{c} 3 \\ 4 \\ 5 \end{array}$$

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

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

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

$$\frac{x}{y} \mid \begin{array}{c} 1 \\ 2 \\ 3 \end{array} \begin{array}{c} 4 \\ 5 \\ 6 \end{array}$$

$$D_f = [2, 4 \cup \infty)$$

$$ب) y \leq \frac{x^2 - 4x + 5}{x^2 - 1}$$

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

$$(x-1)(x+1) \neq 0$$



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

الف) $\log(x^2 - 3x)$

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$x(x-3) > 0 \rightarrow \frac{x}{y} \begin{array}{c|c} 3 & \\ \hline \phi & -\phi \end{array} D_f s (-\infty, 0) \cup (3, +\infty)$

ب) $\log(4 - x^2) > 0 \rightarrow -(x-2)(x+2) > 0 \rightarrow \frac{x}{y} \begin{array}{c|c} -2 & 2 \\ \hline -\phi & \phi \end{array}$

$|x-2| > 0 \rightarrow |x|-2 > 0 \rightarrow \begin{cases} x > 2 \\ x < -2 \end{cases}$
 $|x|-2 \neq 1 \rightarrow |x| \neq 3 \rightarrow x \neq \pm 3$

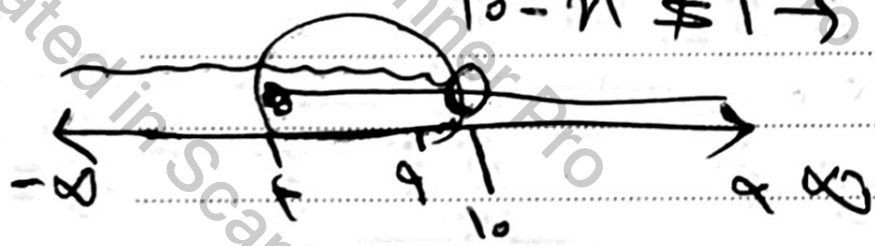
$D_f s (-2, 2) \cup (2, 4) - \{ \pm 3 \}$

ج) $\log \frac{x^2 - 7x + 12}{x-3} > 0 \rightarrow \frac{(x-3)(x-4)}{(x-3)} > 0 \rightarrow \frac{x}{y} \begin{array}{c|c} 4 & \\ \hline -\phi & \phi \end{array}$

$10 - x > 0 \rightarrow x < 10$

$10 - x \neq 1 \rightarrow x \neq 9$

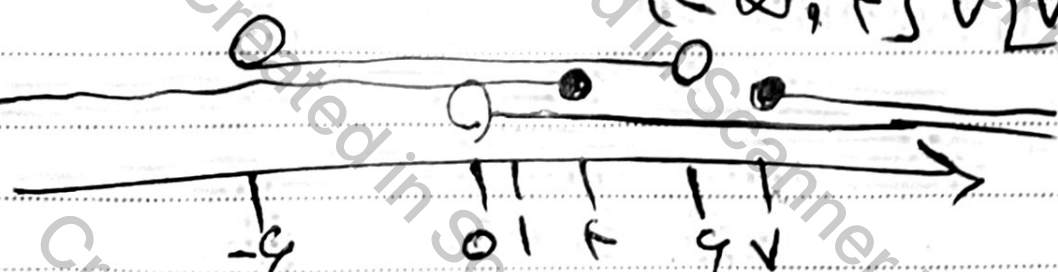
$\Rightarrow D_f s (4, 10) - \{9\}$



د) $\sqrt{x^2 - 11x + 28} \neq 0 \rightarrow \log \sqrt{x^2 - 11x + 28} > 0 \rightarrow \frac{x}{y} \begin{array}{c|c} 4 & 7 \\ \hline -\phi & \phi \end{array}$

$(x-4)(x-7) > 0 \rightarrow \frac{x}{y} \begin{array}{c|c} 4 & 7 \\ \hline -\phi & \phi \end{array}$

$(-\infty, 4] \cup [7, +\infty)$



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

