

نام و نام خانوادگی: شماره: کلاس: B

الف) $x^3 - 20x^2 + 31x - 10 \rightarrow (x-1)(x-2)(x-3) \rightarrow D_f: R - \left\{ \frac{10}{x}, \frac{1}{x-1}, \frac{1}{x-2}, \frac{1}{x-3} \right\}$

ب) $x^3 - x^2 - 18x - 6 \rightarrow (x+1)(x^2 - 4x - 6) \rightarrow D_f: R - \left\{ -1, \frac{2}{x-2}, \frac{3}{x+3} \right\}$

الف) $x - \sqrt{2-2x} \neq 0 \rightarrow x \neq \sqrt{2-2x} \rightarrow x^2 \neq 2-2x \rightarrow (x+1)(x-2) \neq 0$
 $2-2x \geq 0 \rightarrow \frac{1}{2} \geq x \rightarrow D_f: x \leq \frac{1}{2} - \{1\}$

ب) $x - \sqrt{3x-2} \neq 0 \rightarrow x^2 - 3x + 2 \neq 0 \rightarrow (x-1)(x-2) \neq 0 \rightarrow 3x-2 \geq 0 \rightarrow x \geq \frac{2}{3}$
 $D_f: x \geq \frac{2}{3} - \{1, 2\}$

الف) $2\cos x - 1 \neq 0 \rightarrow \cos x \neq \frac{1}{2} \rightarrow D_f: R - \left\{ 2k\pi + \frac{\pi}{3}, 2k\pi - \frac{\pi}{3} \right\}$

ب) $2\sin x + 1 \neq 0 \rightarrow \sin x \neq -\frac{1}{2} \rightarrow D_f: R - \left\{ 2k\pi - \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6} \right\}$

ج) $\cos x \neq 0, \sin x \neq 0, \cot x \neq 1 \rightarrow \cot x \neq 1 \rightarrow D_f: R - \left\{ \frac{k\pi}{2}, k\pi + \frac{\pi}{4} \right\}$

د) $5\sin^2 x - 3 \neq 0 \rightarrow 5\sin^2 x \neq 3 \rightarrow \sin^2 x \neq \frac{3}{5} \rightarrow \sin x \neq \pm \sqrt{\frac{3}{5}} \rightarrow D_f: R - \left\{ \sin x = \pm \sqrt{\frac{3}{5}} \right\}$

الف) $x^2 - 5x + 4 > 0 \rightarrow 12 \rightarrow \frac{12}{+ \quad - \quad +} \rightarrow (-\infty \cup (4 + \infty) =$

ب) $x^2 - 4x + 4 \leq 0 \rightarrow 0, 1 \rightarrow \frac{1 \quad 0}{+ \quad - \quad +} \rightarrow (1 \quad 0)$

ج) $x^2 + 9x + 10 \geq 0 \rightarrow -10, -1 \rightarrow \frac{-10 \quad -1}{+ \quad - \quad +} \rightarrow (-\infty - 1) \cup (-1 + \infty)$

د) $x^2 - 7x + 6 \leq 0 \rightarrow 1, 6 \rightarrow \frac{1 \quad 6}{+ \quad - \quad +} \rightarrow [1 \quad 6]$

الف) $\frac{x^2 - 2x + 2}{x - 1} < 0 \rightarrow 1, 2 \rightarrow \frac{1 \quad 2 \quad 0}{- \quad + \quad - \quad +} \rightarrow (-\infty \cup (2 \quad \infty)$

ب) $\frac{x^2 - 1}{x^2 - 9x + 10} \geq 0 \rightarrow -1, 1, 0 \rightarrow \frac{-1 \quad 1 \quad 0}{+ \quad - \quad - \quad - \quad +} \rightarrow (-\infty -1] \cup (0 + \infty)$

الف) $\frac{x^2 - 4x + 3}{x^3 - 1} \geq 0 \rightarrow \frac{1}{-1} - \frac{3}{0} + \frac{3}{1} \rightarrow [3, +\infty), D_f: [3, +\infty)$

ب) $\frac{x^2 - 16x + 3}{x^2 - 1} \rightarrow$ مصدومیت ندارد $\rightarrow x^2 - 1 \neq 0 \rightarrow x \neq 1, -1 \rightarrow D_f: R - \{1, -1\}$
چون توان فرد است

الف) $x^2 - 2x > 0 \rightarrow x(x - 2) > 0 \rightarrow \frac{0}{+1} - \frac{2}{0} + \frac{0}{+1} \rightarrow (-\infty, 0) \cup (2, +\infty)$

ب) $12x^2 > 0 \rightarrow (4 - x)(4 + x) > 0 \rightarrow \frac{-4}{-1} - \frac{4}{0} + \frac{4}{+1} \rightarrow (-4, 4)$

$|x - 2| > 0 \rightarrow |x| > 2 \rightarrow x > 2$ یا $x < -2 \rightarrow |x| - 2 \neq 1 \rightarrow x \neq 3, -3$

ج) $D_f: (-\infty, -2) \cup (3, +\infty) - \{3, -3\}$
 $\frac{x^2 - 7x + 12}{x - 3} \rightarrow \frac{3}{+1} - \frac{4}{0} + \frac{12}{1} \rightarrow 10 - x > 0 \rightarrow 10 > x, x \neq 9 \rightarrow D_f: [10, +\infty) - \{9\}$

د) $x^2 - 11x + 28 \rightarrow \frac{7}{+1} - \frac{8}{0} + \frac{28}{+1} \rightarrow (-\infty, 4] \cup [7, +\infty) | \sqrt{3x - x^2} > 0 \rightarrow 3x - x^2 > 0 \rightarrow \frac{-3}{-1} + \frac{3}{0} = -\frac{3}{1} + \frac{3}{1} = 0$
 $\rightarrow (-6, 6), x > 0, x \neq 1 \rightarrow D_f: (0, 4] - \{1\}$

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

	-1	0	1
$x^2 - x$	+	0	-
$x^2 + x$	+	0	+
$P(x)$	+	0	+

$x - f(x) \rightarrow 1, 3$
 $\frac{f(x)}{x - 2} \rightarrow \frac{-2}{+1} - \frac{1}{0} + \frac{2}{+1} \rightarrow (-\infty, -2) \cup [1, 2) \cup [3, +\infty)$

