

الف) $y = \frac{x+3}{4x^3-2x^2+3x-1}$ $\Rightarrow$ جمع ضرایب 0 است

$$\frac{4x^3-2x^2+3x-1}{-4x^3+2x^2-3x+1} \Bigg| \frac{x-1}{4x^3+14x+10} \Bigg\} D_f = \mathbb{R} - \left\{1, \frac{3}{4}, \frac{10}{3}\right\}$$

ب) $y = \frac{x+3}{3x^3-x^2-8x-4}$ $\Rightarrow$ جمع ضرایب زوج با فرد برابر است

$$\frac{3x^3-x^2-8x-4}{-3x^3+x^2+8x+4} \Bigg| \frac{x+1}{x^2-4x-12} \Bigg\} D_f = \mathbb{R} - \left\{1, \frac{3}{4}, \frac{10}{3}\right\}$$

الف) $y = \frac{x+1}{x-\sqrt{3-2x}}$ $\Rightarrow x-\sqrt{3-2x} \neq 0 \Rightarrow x \neq \sqrt{3-2x} \Rightarrow x^2 \neq 3-2x \Rightarrow x^2+2x-3 \neq 0 \Rightarrow (x+3)(x-1) \neq 0$

$$\Rightarrow D_f = (-\infty, 1/\infty] - \{1\}$$

ب) $y = \frac{x+2}{x-\sqrt{3x-2}}$ $\Rightarrow x-\sqrt{3x-2} \neq 0 \Rightarrow x \neq \sqrt{3x-2} \Rightarrow x^2 \neq 3x-2 \Rightarrow x^2-3x+2 \neq 0 \Rightarrow (x-1)(x-2) \neq 0$

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

الف) $y = \frac{\sin x}{2\cos x-1} \Rightarrow 2\cos x-1 \neq 0 \Rightarrow 2\cos x \neq 1$

$$\Rightarrow \cos x \neq \frac{1}{2} \Rightarrow D_f = \mathbb{R} - \left\{2k\pi + \frac{\pi}{3}, 2k\pi + \frac{5\pi}{3}\right\}$$

ب) $y = \frac{\cos x+1}{2\sin x+1} \Rightarrow 2\sin x+1 \neq 0 \Rightarrow 2\sin x \neq -1$

$$\Rightarrow \sin x \neq -\frac{1}{2} \Rightarrow D_f = \mathbb{R} - \left\{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\right\}$$

ج) $y = \frac{\tan x+r}{\cot x-1} \Rightarrow \cot x-1 \neq 0 \Rightarrow \cot x \neq 1$

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

د) $y = \frac{\sin x+1}{2\sin^2 x-3} \Rightarrow 2\sin^2 x-3 \neq 0 \Rightarrow \sin^2 x \neq \frac{3}{2}$

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

الف) $x^2-\omega x+4 > 0 \Rightarrow (x-2)(x-2) > 0$

$$\frac{2}{+} - \frac{2}{+} \Rightarrow D_f = (-\infty, 2) \cup (2, +\infty)$$

ب) $x^2-2x+\omega < 0 \Rightarrow (x-0)(x-1) < 0$

$$\frac{1}{+} - \frac{0}{+} \Rightarrow D_f = (0, 1)$$

ج) $x^2+4x+\omega > 0 \Rightarrow (x+1)(x+\omega) > 0$

$$\frac{-\omega}{+} - \frac{-1}{+} \Rightarrow D_f = (-\infty, -\omega] \cup [-1, +\infty)$$

د) $x^2-4x+9 \leq 0 \Rightarrow (x-1)(x-9) \leq 0$

$$\frac{1}{+} - \frac{9}{+} \Rightarrow D_f = [1, 9]$$

الف) $\frac{x^2-3x+2}{x-\omega} < 0 \Rightarrow \frac{(x-1)(x-2)}{x-\omega} < 0 \Rightarrow \frac{1}{-} - \frac{2}{+} - \frac{\omega}{+} \Rightarrow D_f = (-\infty, 1) \cup (2, \omega)$

ب) $\frac{x^2-1}{x^2-4x+\omega} > 0 \Rightarrow \frac{(x+1)(x-1)}{(x-1)(x-\omega)} > 0 \Rightarrow \frac{-1}{+} - \frac{1}{-} - \frac{\omega}{+} \Rightarrow D_f = (-\infty, -1] \cup (\omega, +\infty)$

$$\text{الف) } y = \sqrt{\frac{x^2 - 2x + 3}{x^2 - 1}} \Rightarrow \frac{(x-2)(x-1)}{(x-1)(x+1+x)} \geq 0 \Rightarrow \frac{1}{-\frac{1}{x} - \frac{1}{x+1}} \Rightarrow D_f = [2, +\infty)$$

9

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

$$\text{الف) } y = \log(x^2 - 2x) \Rightarrow x(x-2) > 0 \quad x$$

$$\frac{0}{+} \frac{2}{-} \Rightarrow D_f = (-\infty, 0) \cup (2, +\infty)$$

$$\text{ب) } y = \log \frac{1-x^2}{|x|-2} \rightarrow \frac{(1-x)(1+x)}{|x|-2} > 0$$

$$|x|-2 \rightarrow |x|-2 > 0 \Rightarrow |x| > 2 \Rightarrow x > 2 \text{ or } x < -2$$

$$\rightarrow x \neq \pm 2$$

$$\frac{-2}{-} \frac{2}{+} \Rightarrow D_f = (-\infty, -2) \cup (2, +\infty) - \{\pm 2\}$$

$$\text{ج) } y = \log \frac{x^2 - 2x + 1}{x-2} \rightarrow \frac{(x-1)(x-1)}{x-2} > 0$$

$$1-x \rightarrow 1-x > 0 \Rightarrow 1 > x$$

$$\frac{1}{+} \frac{2}{-} \Rightarrow 1-x \neq 1 \Rightarrow x \neq 0$$

$$D_f = (1, 10) - \{0\}$$

$$\text{د) } y = \sqrt{x^2 - 11x + 18} + \log \frac{\sqrt{1-x^2}}{x} \rightarrow (1+x)(4-x) > 0$$

$$\frac{-4}{-} \frac{9}{+} \Rightarrow D_f = (-\infty, 4] - \{1\}$$

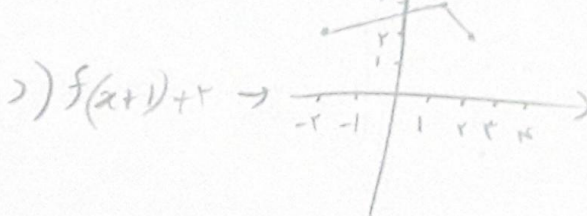
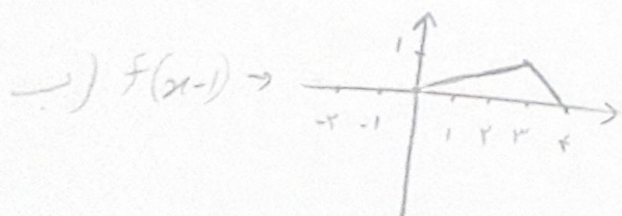
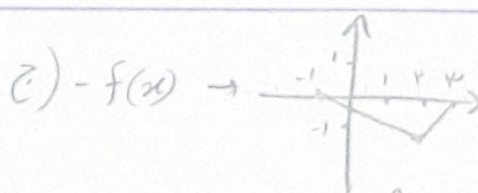
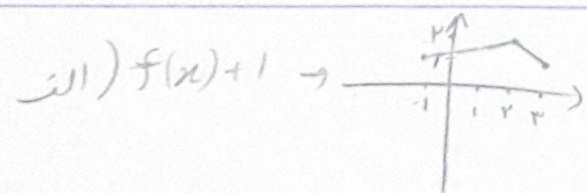
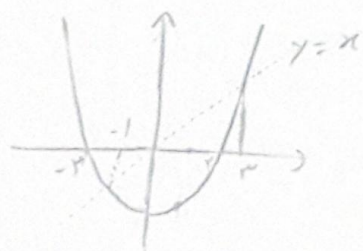
$$y = \frac{x^2 - x}{x^2 + x} \Rightarrow \frac{x(x-1)}{x(x+1)} \Rightarrow D_f = \mathbb{R} - \{0, -1\}$$

$$\frac{-1}{+} \frac{0}{-} \frac{1}{+}$$

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

$$y = \sqrt{\frac{x-f(x)}{f(x)}} \rightarrow -1 < x$$

$$\frac{-2}{-} \frac{-1}{+} \frac{2}{-} \frac{3}{+} \Rightarrow D_f = (-2, -1] \cup (2, 3)$$



9

10