

$$\text{الف) } \frac{x+2}{x^2-x^2+11x-10}$$

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جمع قسوم = 0

=>

$$\frac{x+2}{(x-1)(x^2-11x+10)}$$

$$\Rightarrow D_f = \mathbb{R} - \{1, 0, 2, 0\}$$

$$\text{ب) } \frac{x+3}{3x^2-x^2-11x-2}$$

مجموعه اعداد حقیقی
باز در برابر است

$$\Rightarrow \frac{x+3}{(x+1)(3x^2-11x-2)}$$

$$\begin{aligned} x^2-11x-2 &= 0 & x &= 3 \\ (x-4)(x+2) &= 0 & x &= -\frac{2}{3} \end{aligned}$$

$$\Rightarrow D_f = \mathbb{R} - \{-1, -\frac{2}{3}, 3\}$$

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$$\text{الف) } \frac{x+1}{x-\sqrt{3x-2}}$$

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

$$x \neq \sqrt{3x-2}$$

$$x^2 \neq 3x-2$$

$$x^2+2x-3 \neq 0$$

$$(x+3)(x-1) \neq 0$$

$$\Rightarrow x \neq -3 \text{ و } x \neq 1$$

$$x \geq \frac{2}{3}$$

$$D_f = \mathbb{R} - \{-3, 1\}$$

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

$$\text{ب) } \frac{x+2}{x-\sqrt{3x-2}}$$

$$x \neq \sqrt{3x-2}$$

$$x^2 \neq 3x-2$$

$$x^2-3x+2 \neq 0$$

$$(x-2)(x-1) \neq 0$$

$$x \neq 2$$

$$x \neq 1$$

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

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

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

$$\sqrt{\cos x} \neq 1$$

$$\cos x \neq 1$$

$$D_f = \mathbb{R} - \{2k\pi + \frac{\pi}{2}, 2k\pi + \frac{3\pi}{2}\}$$

$$2k\pi - \frac{\pi}{2}$$

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

$$\sqrt{\sin x} \neq -1$$

$$\sin x \neq -\frac{1}{2}$$

$$D_f = \mathbb{R} - \{2k\pi + \frac{7\pi}{6}, 2k\pi + \frac{11\pi}{6}\}$$

$$2k\pi - \frac{\pi}{6}$$

$$\text{ج) } y = \frac{\tan x + 2}{\cot x - 1}$$

$$\cot x \neq 1$$

$$\frac{\cos x}{\sin x} \neq 1$$

$$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{4}, k\pi + \frac{5\pi}{4}\}$$

$$k\pi - \frac{\pi}{4}$$

$$\text{د) } y = \frac{\sin x + 1}{\sqrt{\sin^2 x - 3}}$$

$$\sqrt{\sin^2 x} \neq 3$$

$$\sin^2 x \neq 9$$

$$\sin x \neq \pm \frac{\sqrt{3}}{2}$$

$$D_f = \mathbb{R} - \{k\pi + \frac{\pi}{3}, k\pi + \frac{2\pi}{3}\}$$

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$$\text{الف) } x^2 - 6x + 4 > 0$$

$$(x-2)(x-4) > 0$$

$$\begin{array}{c|c|c} 2 & 4 & \\ \hline + & - & + \end{array}$$

$$(-\infty, 2) \cup (4, \infty)$$

$$\text{ب) } x^2 - 4x + 5 < 0$$

$$(x-1)(x-5) < 0$$

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

$$1 < x < 5$$

$$D_f = (1, 5)$$

$$\text{ج) } x^2 + 4x + 5 > 0$$

$$(x+1)(x+5) > 0$$

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

$$x > -1, x < -5$$

$$(-\infty, -5) \cup (-1, \infty)$$

$$\text{د) } x^2 - 4x + 4 \leq 0$$

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

$$\begin{array}{c|c|c} 1 & 4 & \\ \hline + & - & + \end{array}$$

$$1 \leq x \leq 4$$

$$D_f = [1, 4]$$

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$$\text{الف) } \frac{x^2 - 3x + 2}{x - 5} < 0$$

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

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

$$x < 1, 2 < x < 5$$

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

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

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

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

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

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v

Y

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