

$$x^3 - 20x^2 + 31x - 1 \neq 0 \quad f+31-20-1 \neq 0 \quad x \neq 1$$

$$x \neq 1 \rightarrow x \in \mathbb{R} \quad (x-1)(x-\frac{1}{2})(x-\frac{1}{2}) \quad D_f = \mathbb{R} - \{1, \frac{1}{2}, \frac{1}{2}\}$$

$$x+2 \rightarrow x \in \mathbb{R}$$

$$3x^3 - x^2 - 11x - 6 \neq 0 \quad 3x^3 - x^2 - 11x - 6 \neq 0 \quad (x+1)(x-2)(x-\frac{3}{2})$$

$$x \neq -1 \quad x \neq 2 \quad x \neq -\frac{3}{2} \quad D_f = \mathbb{R} - \{-1, 2, -\frac{3}{2}\}$$

$$y = \frac{x+1}{x-\sqrt{3-2x}} \Rightarrow 3x \geq 0 \Rightarrow x \leq \frac{3}{2}$$

quva

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

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

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

$$2\cos x - 1 \neq 0 \quad \cos x \neq \frac{1}{2}$$



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

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



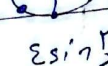
$$D_f = \mathbb{R} - \{2k\pi - \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}\}$$

$$\tan x + 2 \rightarrow \frac{\sin x}{\cos x} + 2 \quad \cos x \neq 0$$



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

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



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

$$x^2 - 5x + 4 > 0 \quad (x-4)(x-1) > 0 \quad D_f = (-\infty, 1) \cup (4, \infty)$$

$$x^2 - 9x + 4 < 0 \quad (x-1)(x-4) < 0 \quad D_f = (1, 4)$$

$$x^2 + 4x + 4 \geq 0 \quad (x+1)(x+4) \geq 0 \quad D_f = (-\infty, -4] \cup [-1, \infty)$$

$$x^2 - 7x + 4 \leq 0 \quad (x-4)(x-1) \leq 0 \quad D_f = [1, 4]$$

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

$$\frac{x^2 - 1}{x^2 - 4x + 4} \geq 0 \quad \frac{(x-1)(x+1)}{(x-2)^2} \geq 0 \quad D_f = (-\infty, -1] \cup [1, \infty)$$

$$\frac{x^2 - \varepsilon x + r}{x^2 - 1} \geq 0 \quad \frac{(x-1)(x-r)}{(x-1)(x^2+x+1)} \geq 0 \quad \frac{r}{-x^2-x+1} \geq 0 \quad D_f = [r, \infty)$$

$$x^2 - 1 \neq 0 \quad x^2 \neq 1 \quad x \neq 1, -1 \quad D_f = \mathbb{R} - \{ \pm 1 \}$$

$$x^2 - 4x > 0 \quad x^2 > 4x \quad D_f = (-\infty, 0) \cup (4, \infty)$$

$$\begin{aligned} |x-2| > 0 & \quad |x| > 2 & x > 2 \\ |x|-2 > 0 & \quad |x| > 2 & \\ (x-2) \neq 1 & \quad x \neq 3, -2 & \end{aligned} \quad D_f = (-\infty, -2) \cup (-2, 2) \cup (2, 3) \cup (3, \infty)$$

$$\begin{aligned} 10-x > 0 & \quad 10-x \neq 1 & x \neq 9 \\ \frac{x^2 - \sqrt{2}x + 1}{x-1} > 0 & \quad x-1 \neq 0 & x \neq 1 \end{aligned} \quad D_f = (8, 9) \cup (9, 10)$$

$$\begin{aligned} x > 0 & \quad x \neq 1 & \sqrt{4-x^2} > 0 & x > |x| \\ y-|x| > 0 & & & \end{aligned} \quad D_f = (0, 1) \cup (1, 2] \quad x^2 - 1 \mid x^2 + 2x \geq 0$$

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

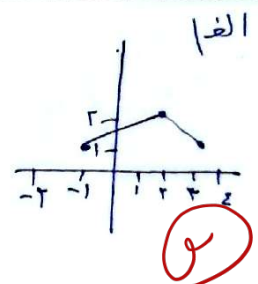
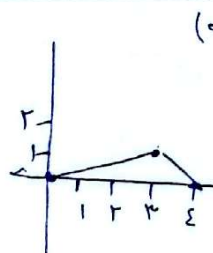
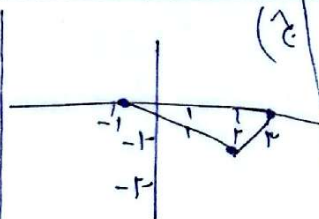
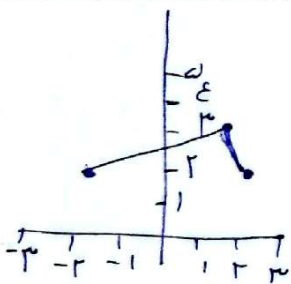
$$\begin{array}{c|ccc} & -1 & 0^* & 1 \\ \hline & + & - & + \end{array}$$

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

	-r	-1	0	r	r
$x-3x$	-	-	+	+	-
$3x$	+	-	-	+	+
	-	+	-	+	-

$$D_f = [-r, -1] \cup [r, r]$$

$$y, v, w$$



$$y$$