

$$\frac{x+1}{x^2-2x+1} = \frac{x+1}{(x-1)(x-1)} \Rightarrow (x-1)(x-1) \neq 0 \Rightarrow R - \{1\}$$

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

$$\Rightarrow \sqrt{x-1} \geq 0 \Rightarrow x-1 \geq 0 \Rightarrow x \geq 1 \Rightarrow D_f = (-\infty, 1] - \{1\}$$

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

$$\frac{\sin x}{x \cos x - 1} \Rightarrow x \cos x - 1 \neq 0 \Rightarrow \cos x \neq \frac{1}{x} \Rightarrow D_f = R - \{x \mid x \cos x = 1\}$$

$$\frac{\cos x + 1}{x \sin x + 1} \Rightarrow x \sin x + 1 \neq 0 \Rightarrow \sin x \neq -\frac{1}{x} \Rightarrow D_f = R - \{x \mid x \sin x = -1\}$$

$$\frac{\tan x + 1}{\cot x - 1} \Rightarrow \cot x - 1 \neq 0 \Rightarrow \cot x \neq 1 \Rightarrow D_f = R - \{x \mid \cot x = 1\}$$

$$\frac{\sin x + 1}{x \sin x - 1} \Rightarrow x \sin x - 1 \neq 0 \Rightarrow \sin x \neq \frac{1}{x} \Rightarrow D_f = R - \{x \mid x \sin x = 1\}$$

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

$$x^2 - 4x + 4 < 0 \Rightarrow (x-2)^2 < 0 \Rightarrow \text{No solution}$$

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

$$x^2 - 4x + 4 \leq 0 \Rightarrow (x-2)^2 \leq 0 \Rightarrow x = 2 \Rightarrow D_f = \{2\}$$

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

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

$$\sqrt{\frac{x^2 - (x+1)}{x^2 - 1}} \Rightarrow \frac{(x-1)(x-1)}{(x-1)(x+1)} \Rightarrow \frac{1}{-1} = -1 \Rightarrow \boxed{[1, +\infty)}$$

$$\sqrt{\frac{x^2 - (x+1)}{x^2 - 1}} \Rightarrow x^2 - 1 \neq 0 \Rightarrow x^2 \neq 1 \Rightarrow x \neq \pm 1 \Rightarrow \boxed{R - \{\pm 1\}}$$

$$\log(x^2 - 1) \Rightarrow x^2 - 1 > 0 \Rightarrow x(x-1) > 0 \Rightarrow \begin{array}{c} 0 \quad 1 \\ + \quad - \quad + \end{array} \Rightarrow \boxed{(-\infty, 0) \cup (1, +\infty)}$$

$$\log_{14} x^2 \Rightarrow 14 - x^2 > 0 \Rightarrow x^2 < 14 \Rightarrow -\sqrt{14} < x < \sqrt{14}$$

$$|x| - 1 > 0 \Rightarrow |x| > 1 \Rightarrow x > 1 \text{ or } x < -1$$

$$\log \frac{x^2 - \sqrt{x+1}}{x-1} \Rightarrow \frac{x^2 - \sqrt{x+1}}{x-1} > 0 \Rightarrow (x-1)(x-\sqrt{x+1}) > 0$$

$$1 - x > 0 \Rightarrow x < 1, \quad x \neq \sqrt{x+1}$$

$$\begin{array}{c} \sqrt{x+1} \\ - \quad + \quad + \end{array} \Rightarrow \boxed{D_f = (1, \sqrt{x+1}) - \{9\}}$$

$$x^2 - 11x + 18 \Rightarrow (x-2)(x-9) \geq 0$$

$$\begin{array}{c} 2 \quad 9 \\ + \quad - \quad + \end{array} \Rightarrow \boxed{D_f = (2, 9) - \{1\}}$$

$$39 - x > 0 \Rightarrow x < 39, \quad -9 < x < 9 \Rightarrow x > 0, \quad x \neq 1$$

$$\frac{x^2 - x}{x^2 + x} = \frac{x(x-1)}{x(x+1)} \Rightarrow \begin{array}{c} -1 \quad 0 \quad 1 \\ + \quad - \quad - \quad + \end{array}$$

	-1	0	1
$x^2 - x$	+	+	-
$x^2 + x$	+	-	+
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$$\sqrt{\frac{x-f(x)}{f(x)}} \Rightarrow \frac{x-f(x)}{f(x)} \geq 0$$

$$\begin{array}{c} -2 \quad -1 \quad 2 \quad 3 \\ - \quad + \quad - \quad + \quad - \end{array}$$

$$\boxed{D_f = [-2, -1] \cup (2, 3]}$$

