

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

$$R - \left\{ 2k\pi + \frac{2\pi}{3}, 2k\pi + \frac{4\pi}{3} \right\}$$

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$$\cos x - 1 \neq 0 \rightarrow \cos x \neq 1 \rightarrow R - \{2k\pi\}$$

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$$\tan x + 1 \neq 0 \rightarrow \tan x \neq -1 \rightarrow k\pi - \frac{\pi}{4}$$

$$\tan = \frac{\sin}{\cos} \rightarrow \cos \neq 0 \rightarrow k\pi + \frac{\pi}{2}$$

$$\cot x - 1 \neq 0 \rightarrow \cot x \neq 1 \rightarrow k\pi + \frac{\pi}{4}$$

$$\cot = \frac{\cos}{\sin} \rightarrow \sin x \neq 0 \rightarrow k\pi$$

$$R - \left\{ k\pi, k\pi + \frac{\pi}{4} \right\}$$

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$$-1 \leq x^2 - 2 \leq 1 \rightarrow 1 \leq x^2 \leq 3 \rightarrow \left. \begin{array}{l} -1 \leq x \leq +\sqrt{3} \\ +1 \leq x \leq -\sqrt{3} \end{array} \right\}$$

$$D_f = [-\sqrt{3}, -1] \cup [1, \sqrt{3}]$$

$$-1 \leq \sqrt{x} - 2 \leq 1 \rightarrow 2 \leq \sqrt{x} \leq 4 \rightarrow 4 \leq x \leq 16 \rightarrow D_f = [4, 16]$$

$$-1 \leq |x| - 3 \leq 1 \rightarrow 2 \leq |x| \leq 4 \rightarrow 2 \leq x \leq 4 \rightarrow D_f = [-4, -2] \cup [2, 4]$$

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$$-1 \leq x^2 + 3x + 1 \leq 1 \rightarrow -2 \leq x^2 + 3x \leq 0 \rightarrow D_f = (-3, -2] \cup [-1, 0)$$

$$-2 \leq x^2 + 3x \rightarrow x^2 + 3x + 2 \geq 0 \rightarrow (x+2)(x+1) \geq 0 \rightarrow \left. \begin{array}{l} x \leq -2 \text{ or } x \geq -1 \\ 0 \leq x^2 + 3x \rightarrow x(x+3) \leq 0 \rightarrow -3 \leq x \leq 0 \end{array} \right\}$$

$$x^2 - 4 > 0 \rightarrow x^2 > 4 \rightarrow x > 2 \text{ or } x < -2 \rightarrow D_f = (-\infty, -2) \cup (2, +\infty)$$

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$$2 - |x| > 0 \rightarrow 2 > |x| \rightarrow -2 < x < 2 \rightarrow D_f = (-2, 2)$$

$5-x > 0 \rightarrow -x > -5 \rightarrow x < 5$ $x-3 > 0 \rightarrow x > 3$ $x-3 \neq 1 \rightarrow x \neq 4$ $D_f = (3, 5) - \{4\}$	الف	٦
$x^2-1 > 0 \rightarrow x^2 > 1 \rightarrow x > 1, x < -1$ $x+3 > 0 \rightarrow x > -3$ $x+3 \neq 1 \rightarrow x \neq -2$ $D_f = (-3, -1) \cup (1, +\infty) - \{-2\}$	ب	٧
$\frac{x^2-4x+3}{x-3} > 0 \rightarrow x \neq 3 \rightarrow \frac{(x-3)(x-1)}{x-3} \rightarrow \frac{1}{-1 + \frac{1}{x-3}} \rightarrow D_f = [1, +\infty) - \{3\}$	الف	٨
$\frac{x+3}{x-2} > 0 \rightarrow \frac{-3}{+1 - \frac{2}{x}} +$ $D_f = (-5, -3] \cup (2, +\infty)$ $x+5 > 0 \rightarrow x > -5$ $x+5 \neq 1 \rightarrow x \neq -4$ $-5 \geq x > -5$	ب	٩
$3 - \log_2^{x-2} > 0 \rightarrow 3 > \log_2^{x-2} \rightarrow x-2 \leq 2^3 \rightarrow x-2 \leq 8 \rightarrow x \leq 10$ $x-2 > 0 \rightarrow x > 2 \rightarrow D_f = (2, 10]$	الف	١٠
$2 \log_3^x - 1 \geq 0 \rightarrow 2 \log_3^x \geq 1 \rightarrow \log_3^x \geq \frac{1}{2} \rightarrow x > 0, x \geq \sqrt{3}$ $D_f = [\sqrt{3}, +\infty)$	ب	١١
$x^x + 1 \neq 0 \rightarrow x^x \neq -1 \rightarrow D_f = \mathbb{R}$	الف	١٢
$x^x - 1 \neq 0 \rightarrow x^x \neq 1 \rightarrow x \neq 0 \rightarrow D_f = \mathbb{R} - \{0\}$	ب	١٣
$x^x - 2 \neq 0 \rightarrow x^x \neq 2 \rightarrow x \neq \frac{1}{2} \rightarrow D_f = \mathbb{R} - \{\frac{1}{2}\}$	ج	١٤
$x^x - 3 \neq 0 \rightarrow x^x \neq 3 \rightarrow D_f = \mathbb{R} - \{\log_3^x\}$	د	١٥
$f(x+1) \in W \rightarrow \frac{f(x)}{f} \in \frac{W-1}{f} \rightarrow x \in \frac{W-1}{f} \rightarrow D_f = \{x x = \frac{k-1}{f}, k \in W\}$	الف	١٦
$\frac{3x-2}{2x-5} \in W \rightarrow 3x-2 = 2Wx-5W \rightarrow 3x-2Wx = -5W+2$ $x = \frac{-5W+2}{3-2W} \rightarrow D_f = \{x x = \frac{5k-2}{2k-3}, k \in W\}$	ب	١٧