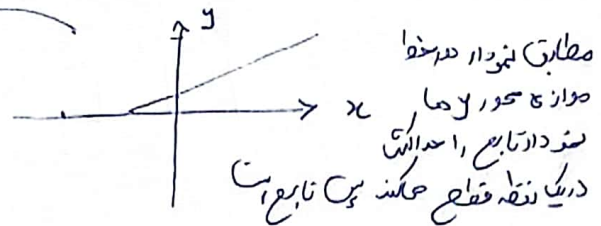


$$x = \begin{cases} 3y-1 & y > 0 \rightarrow \frac{x+1}{3} = y \\ -y^2 & y > 1 \rightarrow \sqrt{-x} = y \end{cases}$$



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$$f(x) = 0 \rightarrow \{-\varepsilon, 3, \omega\} \rightarrow f(x-2) \xrightarrow{1, 2, 3, 4, 5} f(x-2) = \{-2, \omega, 7\} \quad D_{f(x)} = \mathbb{R} - \{4\}$$

$$D_{f(x-2)} = \mathbb{R} - \{6\}$$

$$D_{g(x)} = (-\varepsilon, -2] \cup [0, 3) \cup [7, +\infty)$$

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$$f(x) = \frac{2x^2 - 3x + 2}{x^3 - \varepsilon x} \quad D_{f(x)} = \mathbb{R} - \left\{ \frac{3}{2} \right\}$$

$$D_{f(x)} = \mathbb{R} - \{0, \pm 2\}$$

$$x^3 - \varepsilon x = 0$$

$$x(x^2 - \varepsilon) = (x-2)(x+2)x = 0$$

$$x = -2, 0, 2$$

$$f(x) = \frac{2x^2 - 3x + 2}{x^3 - \varepsilon x} \rightarrow \frac{2x^2 - 3x + 2}{x^3 - \varepsilon x} = \frac{2x^2 - 3x + 2}{x^3 - \varepsilon x} \xrightarrow{\Delta} \frac{2x^2 - 3x + 2}{x^3 - \varepsilon x} \xrightarrow{\Delta} \frac{2x^2 - 3x + 2}{x^3 - \varepsilon x}$$

$$D_{f(x)} = (-2, 0) \cup (2, +\infty)$$

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$$f(x) = \sqrt{\frac{x-2}{x^2 - 3x - 4}} = \sqrt{\frac{(x-2)}{(x^2 - \varepsilon)(x^2 + 2)}} \rightarrow \sqrt{\frac{(x-2)}{(x-2)(x+2)(x^2 + 2)}}$$

$$D_y \rightarrow \frac{-2}{-3+3} \quad D_{f(x)} = (-2, +\infty) - \{2\}$$

$$y = \frac{2x^2 + 1}{\varepsilon - 2[-x]} \quad \varepsilon - 2[-x] = 0 \quad [-x] = 2 \rightarrow 2 \leq -x < 3$$

$$-3 < x \leq -2 \quad D_{f(x)} = \mathbb{R} - [3, -2]$$

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$$f(x) = \frac{\sqrt{x(x^2-1)}}{\sqrt{|x|+x}} \rightarrow |x|+x > 0 \quad \begin{cases} x > 0 \rightarrow x \rightarrow x > 0 \\ x < 0 \rightarrow 0 \end{cases}$$

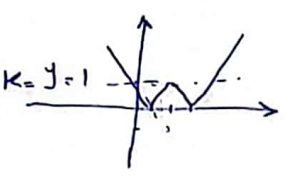
$$x(x-1)(x+1) > 0 \rightarrow \frac{-1}{-1+1-1} \quad D_{f(x)} = [1, +\infty)$$

$$f(x) = \frac{\sqrt{|x-1|-x^2}}{|x|-1} \quad |x|-1 \neq 0 \quad |x| \neq 1 \quad x \neq \pm 1$$

$$D_{f(x)} = [-2, 1) - \{-1\}$$

$$|x-1|-x^2 > 0 \quad |x-1| > x^2 \quad x^2 + x - 2 \leq 0 \rightarrow (x+2)(x-1) \leq 0 \quad x \in [-2, 1]$$

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$\text{و) } y = \sqrt{(x-1)(x-2)} \quad \begin{array}{c ccc} & 1 & 2 & \\ \hline & + & 0 & + \end{array} \quad D_{f(x)} = \mathbb{R}$	
$\text{ب) } y = \sqrt{ x-1 (x-2)} \quad \begin{array}{c ccc} & 1 & 2 & \\ \hline & - & 0 & + \end{array} \quad D_{f(x)} = [2, +\infty) \cup \{1\}$	٤
$y = \frac{1}{ x-1 -1 -k} \rightarrow x-1 -1 =k \begin{cases} \rightarrow x-1 =k+1 \xrightarrow{k=1} x-1 =2 \\ \rightarrow x-1 =-k+1 \xrightarrow{k=1} x-1 =0 \rightarrow x=1 \end{cases}$ $\rightarrow x-1 =2 \rightarrow x-1 = \pm 2 \rightarrow x = 3, -1$ 	٧
$f(x) = \frac{\frac{x^r + x + r}{x^r + x + r}}{\frac{x+1}{x-1}} \rightarrow \frac{(x+r)(x+1)}{(x+1)} \rightarrow D_{f(x)} = \mathbb{R} \setminus \{-1, -r, 1\}$ $x^r - 9x + 9 = 0 \quad (x-r)^r = 0 \rightarrow x=r$ $\frac{0}{0}$ (indeterminate form)	٨
$y = \log_{x+1} \cdot \log_x \frac{1}{r} \quad \begin{matrix} x > -1 & x \neq 0 \\ x > 0 & x \neq 1 \end{matrix} \quad x > 0, x \neq 1 \quad D_{f(x)} = (0, +\infty) \setminus \{1\}$	٩
$-\infty < x < \infty \quad 0 \leq x^r < \infty \quad -1 \leq x^r - 1 < \infty \quad D_{f(x^r-1)} = [-1, \infty)$	١٠