

الف) $y = \frac{n+2}{x^2-2x+1-n}$ $= \frac{n+2}{(x-1)(x-2)(x-n)}$ $\neq 0$
 $x \neq 1, x \neq 2, x \neq n$
 ب) $y = \frac{n+2}{x^2-2x+1-n}$ $= \frac{n+2}{(x-1)(x-2)(x-n)}$ $\neq 0$
 $x \neq 1, x \neq 2, x \neq n$

$\mathbb{R} - \{1, 2, n\}$

$\mathbb{R} - \{-1, 2, \frac{1}{2}\}$

الف) $y = \frac{n+1}{x-\sqrt{x}-x}$ $\neq 0$ $x \neq \sqrt{x}$ $x \neq -x$
 $x \neq 0, x \neq 1, x \neq -1$
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$D_f = (-\infty, \frac{1}{2}] - \{1, -1\}$
 $n = -1, y = \frac{-1}{4}$

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

الف) $y = \frac{\sin x}{\cos x - 1}$ $\neq 0$ $\cos x \neq 1$
 $x \neq 2k\pi$

ب) $y = \frac{\cos x + 1}{\sin x + 1}$ $\neq 0$ $\sin x \neq -1$
 $x \neq \frac{3\pi}{2} + 2k\pi$

ج) $y = \frac{\tan x + 1}{\cos x + 1}$ $\neq 0$ $\cos x \neq -1$
 $x \neq \pi + 2k\pi$

د) $y = \frac{\sin x + 1}{\sin x - 1}$ $\neq 0$ $\sin x \neq 1$
 $x \neq \frac{\pi}{2} + 2k\pi$

$\mathbb{R} - \{k\pi \pm \frac{\pi}{2}\}$

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

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

$\mathbb{R} - \{k\pi \pm \frac{\pi}{4}\}$

الف) $x^2 - 4x + 4 > 0$ $(x-2)(x-2) > 0$

ب) $x^2 - 4x + 4 < 0$ $(x-2)(x-2) < 0$

ج) $x^2 + 4x + 4 \geq 0$ $(x+2)(x+2) \geq 0$

د) $x^2 - 4x + 4 \leq 0$ $(x-2)(x-2) \leq 0$

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

$(1, 4)$

$(-\infty, -2] \cup [-2, \infty)$

$[4, 4]$

الف) $\frac{x^2-2x+2}{x-1} < 0$ $\frac{(x-1)(x-2)}{x-1} < 0$

$(-\infty, 1) \cup (2, \infty)$

ب) $\frac{x^2-1}{x^2-4x+4} \geq 0$

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

$(-\infty, -1] \cup (2, \infty)$

الف) $y = \sqrt{\frac{x^2 - 5x + 4}{x^2 - 1}}$ $\frac{(x-1)(x-4)}{(x-1)(x^2+1)}$
 $x \neq 1$

$D_f = [4, +\infty)$

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ب) $y = \sqrt{\frac{x^2 - 5x + 4}{x^2 - 1}}$ $x^2 - 1 \neq 0$ $x \neq \pm 1$

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

الف) $y = \log(x^2 - 2x)$ $x^2 - 2x > 0$ $x(x-2) > 0$

$D_f = (-\infty, 0) \cup (2, +\infty)$

ب) $y = \log|x^2 - 2x|$ $|x^2 - 2x| > 0$ $x^2 < 14$ $-2 < x < 2$

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

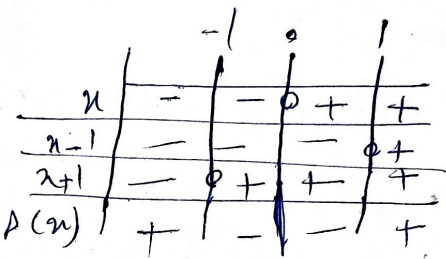
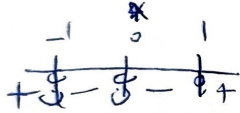
ج) $y = \log \frac{x^2 - 5x + 4}{x^2 - 1}$ $\frac{(x-1)(x-4)}{(x-1)(x^2+1)} > 0$ $x \neq 1$

$D_f = (-\infty, 0) \cup (4, +\infty)$

د) $y = \sqrt{x^2 - 11x + 28} + \log x$ $x^2 - 11x + 28 > 0$ $x > 0$

$D_f = (0, 4) \cup (7, +\infty)$

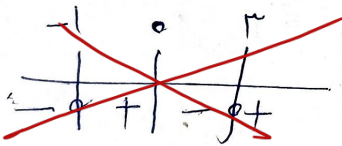
$y = \frac{x^2 - x}{x^2 + x} = \frac{x(x-1)}{x(x+1)}$



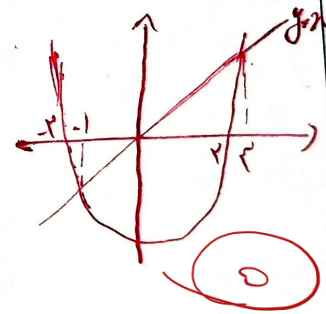
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$y = \sqrt{x - f(x)}$ $f(x) \neq 0$

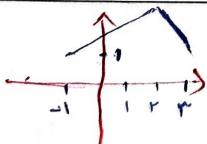


$D_f = (0, 1] \cup [2, +\infty)$

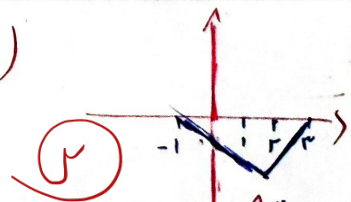


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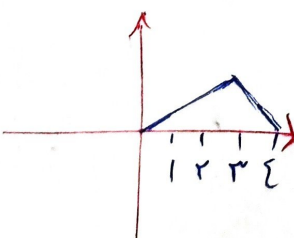
الف) $f(x) + 1$



ج) $-f(x)$



ب) $f(x-1)$



د) $f(x+1) + 2$

