

Date:

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19/10/20

الحل

$$الف) y = \frac{x+5}{5x^2-5x-14x-10} \neq 0$$

$$\frac{(5x+5)(x-2)(x-1)}{\frac{5}{1} \cdot \frac{5}{1} \cdot \frac{5}{1} \cdot \frac{5}{1}}$$

$$D_f = \mathbb{R} - \left\{ \frac{5}{5}, \frac{5}{5}, -1 \right\}$$

$$\frac{5x^2-5x-14x-10}{5x^2-5x-14x-10} \bigg| x-1$$

$$\frac{-14x^2+5x-10}{5x^2-5x-14x-10}$$

$$\frac{14x-10}{-14x+10}$$

$$\frac{(5x-5)(5x-10)}{\frac{5}{1} \cdot \frac{5}{1}}$$

$$ب) y = \frac{x+5}{5x^2-x^2-14x-10} \neq 0$$

$$D_f = \mathbb{R} - \left\{ \frac{5}{5}, -\frac{5}{5}, -1 \right\}$$

$$\frac{5x^2-x^2-14x-10}{5x^2-x^2-14x-10} \bigg| x+1$$

$$\frac{-5x^2-14x-10}{5x^2-x^2-14x-10}$$

$$\frac{-5x-10}{5x-10}$$

$$\frac{5x+10}{5x-10}$$

$$\frac{x^2-5x-10}{(x-5)(x+5)}$$

$$\frac{(x-5)(x+5)}{4 \cdot -5}$$

$$\frac{5x+10}{5x-10} = \frac{5}{5}, -\frac{5}{5}$$

$$الف) y = \frac{x+1}{x-\sqrt{5-5x}}$$

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$$D_f = (-\infty, \frac{5}{5}] - \{1, \text{X}\}$$

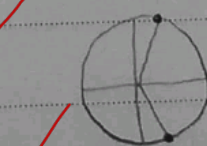
$$ب) y = \frac{x+5}{x-\sqrt{5x-5}}$$

$$D_f = \left[\frac{5}{5}, +\infty \right) - \{1, 5\}$$

$$الف) y = \frac{\sin x}{5\cos x - 1}$$

$$\cos x \neq \frac{1}{5} \checkmark$$

$$D_f = \mathbb{R} - \left\{ k\pi \pm \frac{\pi}{5} \right\} \checkmark$$



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تعاريف

$$ب) y = \frac{\cos x + 1}{\sin x + 1}$$

$$\sin x + \frac{-1}{1}$$



$$D_f = \mathbb{R} - \left\{ k\pi - \frac{\pi}{4}, k\pi - \frac{3\pi}{4} \right\} \checkmark$$

$$ج) y = \frac{\tan x + 1}{\cot x - 1}$$

$$\frac{\sin x}{\cos x} \neq 0$$

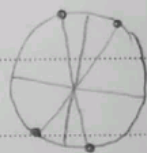
$$\cot x \neq 1$$



$$D_f = \mathbb{R} - \left\{ k\pi, k\pi + \frac{\pi}{4}, k\pi + \frac{3\pi}{4} \right\} \checkmark$$

$$د) y = \frac{\sin x + 1}{\sin x - 1}$$

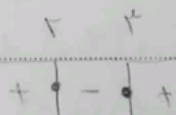
$$\sin x + \frac{1}{-1}$$



$$D_f = \mathbb{R} - \left\{ k\pi \pm \frac{\pi}{2} \right\} \checkmark$$

$$ا) x^2 - 2x + 4 > 0$$

$$(x-1)(x-3) > 0$$

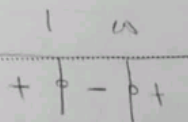


$$D_f = (-\infty, 1) \cup (3, +\infty)$$

5, x

$$ب) x^2 - 9x + 2 < 0$$

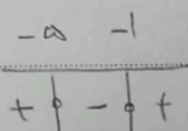
$$(x-1)(x-2) < 0$$



$$D_f = (1, 2)$$

$$ج) x^2 + 4x + 2 \geq 0$$

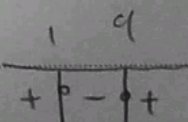
$$(x+1)(x+2) \geq 0$$



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

$$د) x^2 - 4x + 4 \leq 0$$

$$(x-1)(x-4) \leq 0$$



$$D_f = [1, 4]$$

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

$$\frac{1 \quad 2 \quad \infty}{- \quad + \quad - \quad +}$$

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

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

$$ب) \frac{x^2 - 1}{x^2 - 9x + 4} \geq 0$$

$$\frac{-1 \quad 1 \quad 4}{+ \quad - \quad - \quad +}$$

$$\frac{(x-1)(x+1)}{(x-1)(x-4)} \geq 0$$

$$D_f = (-\infty, -1] \cup (4, +\infty)$$

$$الف) y = \sqrt{\frac{x^2 - 5x + 6}{x^2 - 1}}$$

$$\frac{1 \quad 2 \quad \infty}{- \quad - \quad - \quad +}$$

$$D_f = [2, +\infty)$$

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$$ب) y = \sqrt{\frac{x^2 - 8x + 16}{x^2 - 1}}$$

$$x^2 \neq 1$$

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

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$$الف) y = \log(x^2 - 5x) > 0 \quad x(x-5) > 0$$

$$\frac{0 \quad 5}{+ \quad - \quad +}$$

$$D_f = (-\infty, 0) \cup (5, +\infty)$$

$$ب) y = \log_{14-x^2} |x-1|$$

$$14 - x^2 > 0$$

$$|x-1| > 0$$

$$|x-1| \neq 1$$

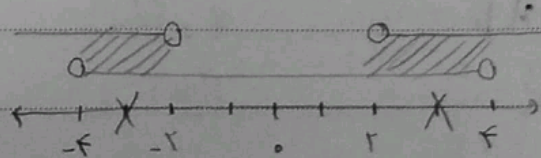
$$-4 < x < 4$$

$$x < 1$$

$$x < -1$$

$$x \neq \pm 1$$

$$D_f = (-4, -1) - \{-1\} \cup (1, 4) - \{1\}$$



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تفاضل

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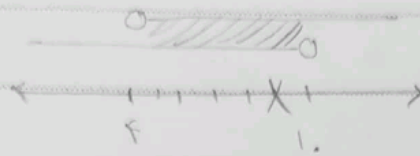
$$ج) y = \log \frac{x^2 - 1/x + 1}{x - 1}$$

$$\frac{(x-1)(x-1)}{(x-1)}$$

$$\frac{+}{-} \frac{-}{+} \frac{+}{+} \rightarrow (1, +\infty)$$

$$D_f = (1, +\infty) - \{1\}$$

$$x < 1, 1 - x + 1, x \neq 1$$



$$د) y = \sqrt{x^2 - 11x + 11} + \log \sqrt{4 - x^2}$$

$$\frac{(x-1)(x-1)}{(x-1)}$$

$$\sqrt{4 - x^2} > 0, x > 0$$

$$\frac{+}{+} \frac{-}{-} \frac{+}{+}$$

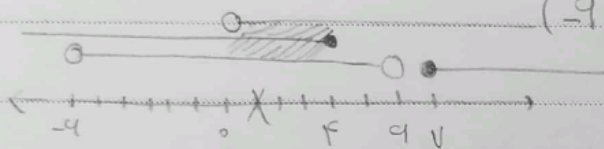
$$4 - x^2 > 0, x < 2$$

$$-2 < x < 2$$

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

$$(-2, 2)$$

$$D_f = [0, 2] - \{1\}$$



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

x	-1	0	1
$x^2 - x$	+	+	-
$x^2 + x$	+	-	+
P	+	-	+

$$-1 \quad 0 \quad 1$$

$$\frac{+}{+} \frac{-}{-} \frac{+}{+}$$

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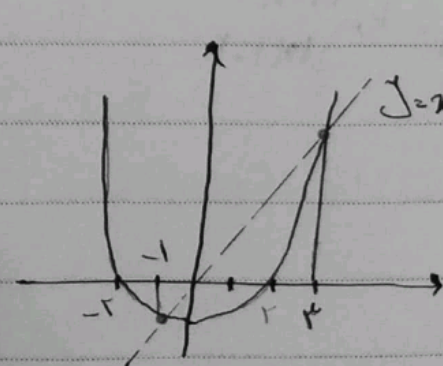
$$y = \sqrt{\frac{x - f(x)}{f(x)}}$$

$$x - f(x) = 0$$

$$x = f(x)$$

$$f(x) = 0$$

$$\frac{-}{-} \frac{+}{+} \frac{-}{-} \frac{+}{+}$$



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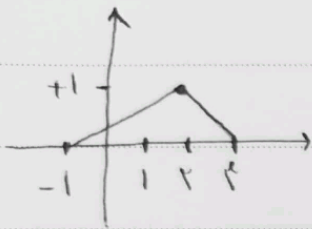
$$D_f = (-1, 1] \cup (1, 2)$$

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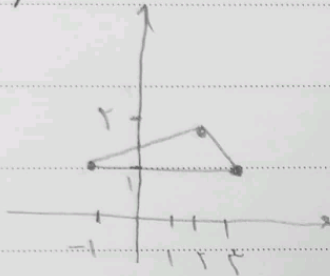
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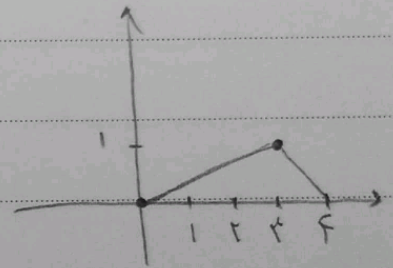
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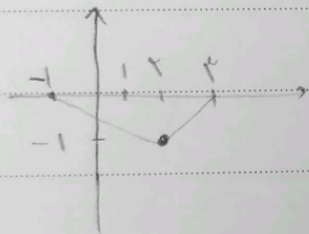
الف) $f(x) + 1$



ب) $f(x-1)$



ج) $-f(x)$



د) $f(x+1) + 2$

