

۲. از بین عالی نویسی مرتب و تمیز

ب) $y = \frac{x+13}{1x^3+9x^2+10x+13}$ $\rightarrow 1x^3+9x^2+10x+13 \neq 0$ $\rightarrow (x+1)(1x^2+7x+13) \neq 0$ $\rightarrow (x+1) \neq 0 \rightarrow x \neq -1$ $\rightarrow 1x^2+7x+13 \neq 0$ $\rightarrow x = \frac{-7 \pm \sqrt{49-52}}{2} = \frac{-7 \pm i}{2}$ $D_f = \mathbb{R} - \{-1, \frac{-7-i}{2}, \frac{-7+i}{2}\}$	الف) $y = \frac{x+13}{1x^3+13x^2-8x+13}$ $\rightarrow 1x^3+13x^2-8x+13 \neq 0$ $\rightarrow (x-1)(1x^2+14x-13) \neq 0$ $\rightarrow (x-1) \neq 0 \rightarrow x \neq 1$ $\rightarrow 1x^2+14x-13 \neq 0$ $\rightarrow x = \frac{-14 \pm \sqrt{196+52}}{2} = \frac{-14 \pm 15}{2}$ $\rightarrow x = 1, -14$ $D_f = \mathbb{R} - \{1, -14\}$	۱
ب) $y = \sqrt{\frac{x+13}{x^3-13x^2+13x-1}}$ $\rightarrow \frac{x+13}{x^3-13x^2+13x-1} \geq 0$ $\rightarrow \frac{x+13}{(x-1)(x^2-12x+1)} \geq 0$ $\rightarrow \frac{x+13}{(x-1)(x-12)(x-\frac{1}{12})} \geq 0$ $D_f = (-\infty, -13] \cup (1, +\infty)$	الف) $y = \frac{x+13}{x^3-13x^2+13x-1}$ $\rightarrow x^3-13x^2+13x-1 \neq 0$ $\rightarrow (x-1)(x^2-12x+1) \neq 0$ $\rightarrow (x-1) \neq 0 \rightarrow x \neq 1$ $\rightarrow x^2-12x+1 \neq 0$ $\rightarrow x = \frac{12 \pm \sqrt{144-4}}{2} = 6 \pm \sqrt{35}$ $D_f = \mathbb{R} - \{1, 6+\sqrt{35}, 6-\sqrt{35}\}$	۲
$y = \frac{1}{x^2-5 x-1 -2x+5}$ $\rightarrow x^2-5 x-1 -2x+5 \neq 0$ $\rightarrow x^2-5 x-1 -2x+5 \neq 0$ $\rightarrow x^2-5 x-1 -2x+5 \neq 0$ $\rightarrow x^2-5 x-1 -2x+5 \neq 0$ $D_f = \mathbb{R} - \{-3, 0, 2, 5\}$	$x^2-5 x-1 -2x+5 \neq 0$ $x^2-5 x-1 -2x+5 \neq 0$ $(x-2)(x-5) \neq 0 \rightarrow x \neq 2, x \neq 5$ $x^2-5 x-1 -2x+5 \neq 0$ $x^2-5 x-1 -2x+5 \neq 0$ $D_f = \mathbb{R} - \{-3, 0, 2, 5\}$	۳
ب) $y = \frac{5x^2+4}{[x]^2-2[x]-3}$ $\rightarrow [x]^2-2[x]-3 \neq 0$ $\rightarrow ([x]-3)([x]+1) \neq 0$ $\rightarrow [x] \neq 3, [x] \neq -1$ $\rightarrow x \notin [3, 4), x \notin [-1, 0)$ $D_f = (-\infty, -1) \cup [0, 3) \cup [4, +\infty)$	الف) $y = \sqrt{[-x]-2}$ $\rightarrow [-x]-2 \geq 0 \rightarrow [-x] \geq 2$ $\rightarrow -x \geq 2 \rightarrow x \leq -2$ $D_f = (-\infty, -2]$	۴
ب) $y = \sqrt{[x-\frac{1}{10}]+[\frac{1}{10}-x]}$ $[x-\frac{1}{10}]+[\frac{1}{10}-x] \geq 0 \rightarrow [x]+[-x] \geq 0$ $\rightarrow x - \frac{1}{10} \in \mathbb{Z}$ $\rightarrow x \in \mathbb{Z} + \frac{1}{10}$ $D_f = \{x x = k + \frac{1}{10}, k \in \mathbb{Z}\}$	الف) $y = \sqrt{[x-\frac{1}{10}]+[x+\frac{9}{10}]}$ $[x-\frac{1}{10}]+[x+\frac{9}{10}] \geq 0 \rightarrow [x-\frac{1}{10}]+[x-\frac{1}{10}+1] \geq 0$ $[x-\frac{1}{10}]+[x-\frac{1}{10}]+1 \geq 0 \rightarrow 2[x-\frac{1}{10}] \geq -1$ $[x-\frac{1}{10}] \geq -\frac{1}{2} \rightarrow x - \frac{1}{10} \geq -\frac{1}{2} \rightarrow x \geq \frac{1}{10}$ $D_f = [\frac{1}{10}, +\infty)$	۵

