

$y = \frac{x^2+1}{ x } \rightarrow y = x + \frac{1}{ x }$ $R = [2, +\infty)$	الف) $y = \frac{ x +1}{ x -2} \rightarrow y x - 2y = x +1$ $x (y-1) = 1+2y \rightarrow x = \frac{1+2y}{y-1}$ $\frac{1}{+1} \frac{1}{-1} +$ $R = (-\infty, \frac{1}{2}) \cup (1, +\infty)$	(2)
$y = \frac{x^2+2x-2}{x+3} \rightarrow yx+3y = x^2+2x-2$ $x^2 + (2-y)x - (2+3y) = 0$ $\Delta \geq 0 \rightarrow (2-y)^2 - 4(2+3y) \geq 0$ $y^2 - 4y - 10 \geq 0$ $\frac{1}{+1} \frac{1}{-1} +$ $R = (-\infty, -2] \cup [6, +\infty)$		(2)
$f(x) = \frac{x^2-n+1}{x^2-n+1}$ $x^2-n+1 \neq 0 \rightarrow D_f = R$ $R_y = [0, 1)$ $yx^2 - yx + y = x^2 - n + 1 \rightarrow x^2(1-y) + n(y-1) + \frac{1}{2} - y = 0$ $(y-1)x^2 - (y-1)(\frac{1}{2}-y) = 0$ $(y-1)(x^2 - (\frac{1}{2}-y)) = 0$ $\frac{1}{+1} \frac{1}{-1} +$ $R_f = [0, 1)$		(2)
$y = \sqrt{x^2-n}$ $x_{min} = \frac{-b}{2a} = \frac{n}{2} = 2$ $y_{min} = -1 \rightarrow \sqrt{-1} = -2$ $R = [-2, +\infty)$	الف) $x_{max} = \frac{-b}{2a} = \frac{f}{-2} = 2$ $y_{max} = 3$ $R_y = \sqrt{(-\infty, 3]} = [-2, 3]$	(2)
$y = \log \frac{x^2+1}{x}$ $x + \frac{1}{x} \rightarrow (-\infty, -2] \cup [2, +\infty)$ $\frac{x}{x} = [2, +\infty)$ $R = [2, +\infty)$	الف) $y = \log(x^2-x+1)$ $R_y = (-\infty, +\infty) = R$ راه حل افاق!	(2)

