

$f(x) = \sqrt{x+4\sqrt{x-4}}$
 $g(x) = \sqrt{x-4\sqrt{x-4}}$ $x > 4$
 $f(x) + g(x) = a + b\sqrt{x-4}$
 $\frac{a+b}{c} = ?$

$t = \sqrt{x-4} \rightarrow x = t^2 + 4$
 $f(x) = \sqrt{t^2 + 4 + 4t} = \sqrt{(t+2)^2} = |t+2|$
 $g(x) = \sqrt{t^2 + 4 - 4t} = \sqrt{(t-2)^2} = |t-2|$
 $f(x) + g(x) = |t+2| + |t-2|$
 $\frac{a+b}{c} = \frac{4}{1} = 4$
 $a=0, b=2, c=-2$

$f(x) = \frac{x+2}{x^2-4x+3}$
 $g(x) = \frac{x-2}{x^2-4x+3}$
 $f(0) = \frac{2}{3}$
 $f(2) = -\frac{1}{1}$

$g(x) = \frac{x-2}{x^2-4x+3}$
 $f(x) + g(x) = \frac{x+2}{x^2-4x+3} + \frac{x-2}{x^2-4x+3} = \frac{2x}{x^2-4x+3}$
 $\frac{a+b}{c} = \frac{2}{1} = 2$

$\frac{a+b}{c} = \frac{2}{1} = 2$

$f(x) = \{(1, 2), (2, -1), (3, 2), (-1, 9)\}$
 $g(x) = \{(-2, 3), (1, -1), (2, 2), (-1, 0)\}$
 $f(x) + g(x) = \{(1, 2), (2, -1), (3, 2), (-1, 9)\}$
 $g(x) + f(x) = \{(-2, 3), (1, -1), (2, 2), (-1, 0)\}$
 $f(x) + g(x) = \{(1, 2), (2, -1), (3, 2), (-1, 9)\}$
 $g(x) + f(x) = \{(-2, 3), (1, -1), (2, 2), (-1, 0)\}$

$g(-1) = 0$
 $g(1) = -1$
 $g(2) = 2$
 $g(-2) = 3$
 $f(1) = 2$
 $f(2) = -1$
 $f(3) = 2$
 $f(-1) = 9$

$f(x) = \{(2, 1), (3, 2), (4, 9), (-2, 0)\}$
 $g(x) = \{(2, 1), (3, 2), (-2, 9), (-1, 2), (3, 3)\}$
 $h(x) = f(x) + g(x)$
 $h(x) = \{(2, 2), (3, 4), (-2, 9)\}$

$h(x) = f(x) + g(x)$
 $h(2) = f(2) + g(2) = 1 + 1 = 2$
 $h(3) = f(3) + g(3) = 2 + 2 = 4$
 $h(-2) = f(-2) + g(-2) = 0 + 9 = 9$

$f(x) = \frac{\sqrt{2x-x}}{x+1}$
 $g(x) = \frac{[x] + [-x]}{x+1}$
 $\frac{f(x)}{g(x)} = ?$

$D_f = \{x \mid x \geq 0\}$

$f(x) = \frac{\sqrt{2x-x}}{x+1}$
 $g(x) = \frac{[x] + [-x]}{x+1}$
 $\frac{f(x)}{g(x)} = \frac{\sqrt{2x-x}}{[x] + [-x]}$

$g(x) + f(x) = \frac{[x] + [-x]}{x+1} + \frac{\sqrt{2x-x}}{x+1} = \frac{[x] + [-x] + \sqrt{2x-x}}{x+1}$

$f(x) = \sqrt{2x - x^2}$ $g(x) = \{(1, 2), (2, 1), (4, 4), (5, 1)\}$ $h(x) = \frac{f(x)}{g(x)}$ $Lh = \{(1, 0), (2, \frac{\sqrt{2}}{2}), (4, 0)\}$	$\frac{2x - x^2}{(x-1)(x-5)} \rightarrow x^2 - 2x + 1 = (x-1)^2$ $x=1 \rightarrow f(1) = \sqrt{2-1} = 1 \rightarrow h(1) = \frac{1}{2}$ $x=2 \rightarrow f(2) = \sqrt{4-4} = 0 \rightarrow h(2) = \frac{0}{1} = 0$ $x=4 \rightarrow f(4) = \sqrt{8-16} = 0 \rightarrow h(4) = 0$	
$y = x^3 - 3x^2 + 3x$ $y = 1 = (x-1)^3 \rightarrow x-1 = \sqrt[3]{y-1} \rightarrow x = \sqrt[3]{y-1} + 1$ $R_y = \mathbb{R}$	$y = \frac{1}{x^2 - x} \rightarrow yx^2 - 2yx = 1 \rightarrow yx^2 - 2yx - 1 = 0$ $\Delta = (-2y)^2 - 4y(-1) = 4y^2 + 4y = 4y(y+1)$ $y > 0 \rightarrow \frac{1}{x^2 - x} \neq 0$ $R_y = (-\infty, -1] \cup (0, +\infty)$	7
$y = x^2 - 4x + 6$ $y = -x^2 + 4x + 6$ $y = \sqrt{x^2 - 4x}$ $y = \sqrt{4x - x^2}$	$(\frac{4}{2}, 6) = (2, 6) \rightarrow R_y = [6, +\infty)$ $(-\frac{4}{2}, 12) = (-2, 12) \rightarrow R_y = (-\infty, 12]$ $(\frac{4}{2}, -1) = (2, -1) \rightarrow R_y = [0, +\infty)$ $(-\frac{4}{2}, 0) = (-2, 0) \rightarrow R_y = [0, +\infty)$	8
$y = x^3 - 2x^2 + 2x + 1$ $y = x^3 - 4x^2 + 3x + 2$ $y = \sqrt{x^2 - 4x + 4}$ $y = (x^3 - 4x^2 + 3x + 1)^2$	$R_y = \mathbb{R}$ $R_y = \mathbb{R}$ $R_y = [0, +\infty)$ $R_y = [0, +\infty)$	9
$y = \frac{2x+1}{x-2}$ $y = \frac{2x+1}{x+1}$	$R_y = \mathbb{R} - \{\frac{a}{c} = 2\} = \mathbb{R} - \{2\}$ $R_y = \mathbb{R} - \{\frac{a}{c} = \frac{2}{1}\} = \mathbb{R} - \{2\}$	10