

$$\frac{a+b}{c} = 0 \rightarrow \frac{0+2}{-1} = -2$$

$$a=0, b=2, c=-1$$

$$f(x) = \sqrt{x+2} \sqrt{x-2}$$

$$g(x) = \sqrt{x-2} \sqrt{x-3}$$

$$f(x) + g(x) = a + b\sqrt{x+c}$$

$$f+g = \sqrt{1(x-3)} = \sqrt{x-3}$$

$$(f+g)^2 \rightarrow f^2 + g^2 + 2fg$$

$$fg = \sqrt{(x+2)(x-3)(x-2)(x-3)}$$

$$f(x) = \frac{x+2}{x^2-3x+2}$$

$$g(x) = \{(2,1), (1,0), (3,0), (0,3)\} \rightarrow x=2 \rightarrow g(2)=1$$

$$f(2) = \frac{4}{-1} = -4 \quad \frac{g(2)}{f(2)} = -\frac{1}{-4} = \frac{1}{4}$$

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

$$f(x) = \{(1,2), (2,-1), (3,2), (-1,4)\}$$

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

$$⑦ f(2x) \rightarrow \{(-\frac{1}{2}, 2), (\frac{3}{2}, -1), (2, 2), (-\frac{1}{2}, 4)\}$$

$$⑧ f(x^2) \rightarrow \{(-2, 2), (-1, 2), (1, 2), (2, 2), (-2, 2)\}$$

$$⑨ fg^2(x) + 1 \rightarrow \{(-2, 19), (1, 13), (3, 9), (-1, 1)\}$$

$$④ \frac{fg}{f} \rightarrow \{(1, -3), (3, -1)\}$$

$$y = x^2 - 8x + 10 \rightarrow \begin{cases} \frac{-b}{2a} \rightarrow \frac{8}{2} = 4 \\ y = 16 - 16 + 10 \rightarrow 10 \end{cases} \quad (1)$$

$$Rf = [4, 10]$$

$$y = -x^2 + 4x + 12 \rightarrow \begin{cases} \frac{-b}{2a} \rightarrow \frac{-4}{-2} = 2 \\ -9 + 16 + 12 = 19 \end{cases}$$

$$Rf = (-\infty, 19]$$

$$y = \sqrt{x^2 - 8x - 12} \rightarrow \begin{cases} \frac{-b}{2a} \rightarrow \frac{8}{2} = 4 \\ y = 16 - 16 - 12 = -12 \end{cases}$$

$$Rf = \sqrt{[-12, \infty)}$$

$$y = \sqrt{4x - x^2} \rightarrow \sqrt{-x^2 + 4x} \rightarrow \begin{cases} \frac{-b}{2a} \rightarrow \frac{-4}{-2} = 2 \\ -9 + 16 = 7 \end{cases}$$

$$\sqrt{[-1, 4]} \rightarrow Rf$$

$$[0, 4]$$

$$y = x^4 - 4x^3 + 4x + 1 \rightarrow \text{RF} = \mathbb{R}$$

(9)

$$y = x^4 - 4x^3 + 4x + 1 \rightarrow \text{RF} = \mathbb{R}$$

$$y = \sqrt{x^4 - 4x^3 + 4x + 1} \rightarrow \text{RF} = [0, +\infty)$$

$$y = (x^4 - 4x^3 + 4x + 1)^4 \rightarrow [0, +\infty)$$

$$y = \frac{4x + 1}{x - 4} \rightarrow \text{RF} = \mathbb{R} - \{4\}$$

(10)

$$y = \frac{4x + 1}{x + 1} \rightarrow \text{RF} = \mathbb{R} - \{-1\}$$