

$$\frac{-\Delta \quad 0 \quad Y \quad \Delta}{- \quad + \quad - \quad + \quad -} \rightarrow D_f[-\Delta, Y] U[Y, \Delta] \quad -1$$

$$X = \omega \quad \swarrow \quad \searrow \quad X = \gamma$$

$$b_3 = 1, -1, -2$$

$$f(-r) = ? \quad f(x) = \frac{1}{x} \rightarrow \frac{1}{-r} = -\frac{1}{r} \rightarrow f(-r) = -\frac{1}{r} \rightarrow f(-r) = -\frac{1}{r}$$

$$f(x) = \begin{cases} x - \sqrt{x+r} & : x > r \\ r + x & : x \leq r \end{cases}$$

$$\left. \begin{aligned} f(f(a)) &= f(a) - \sqrt{a+r} = r \\ f(f(b)) &= f(b) - \sqrt{b+r} = r \\ f(f(c)) &= f(c) - \sqrt{c+r} = r \end{aligned} \right\} f(f(a)) + f(f(b)) + f(f(c)) = r + r + r = 9$$

$$f(n) = a n^r + b n + r \rightarrow f(n-1) = a(n^r + (-r)n) - b(n-1) + r = a n^r + b n - r = f(n) - r$$

$$f(n-1) - f(n) = 4n + 7 \rightarrow an^2 + a - (an - bn + b + 7) - an^2 + bn - 7 = 4n + 7$$

$$a + b - 2ax = 4a + 2 \rightarrow a + b = 2 \rightarrow -r + b = 2 \rightarrow b = 2$$

↙ $-r_{ax} = r_{xa} \rightarrow -r_{ax} = 9 \rightarrow r_{ax} = -9 \rightarrow a = -r$

$$f(x) = \frac{x^r + rx + a}{x^r + rx + v} \quad f(\sqrt{r}-y) = \frac{(\sqrt{r}-y)^r + r(\sqrt{r}-y) + a}{(\sqrt{r}-y)^r + r(\sqrt{r}-y) + v} = \frac{r + r - \cancel{r\sqrt{r}} + \cancel{r\sqrt{r}} - 1 + a}{r + r - \cancel{r\sqrt{r}} + \cancel{r\sqrt{r}} - 1 + v} = \frac{r}{v} = \frac{r}{r} = 1$$

$$f(x - \frac{1}{x}) = \frac{x^4 + 1}{x^2} \Rightarrow \frac{x^4}{x^2} + \frac{1}{x^2} = x^2 + \frac{1}{x^2} \rightarrow (x + \frac{1}{x})^2 = x^2 + \frac{1}{x^2} + 2 \rightarrow x^2 + \frac{1}{x^2} = (x - \frac{1}{x})^2 + 2$$

$$f(-3) = ? \rightarrow f(x) = x^2 + 2 \rightarrow f(-3) = (-3)^2 + 2 = 9 + 2 = 11$$

$$f(x) = \{(2, 0)(1, -1)(0, 2)(7, 1)\} \rightarrow D_f = 2, 0, 1, 7 \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} D = 0, 1, 2$$

$$g(x) = \sqrt{4-x} \rightarrow (3-x)(3+x) \geq 0 \quad \frac{-3}{-1+1} \rightarrow D_g = [-3, 3]$$

$$\text{الف) } \frac{f}{g} = \{(0, \frac{2}{3})(1, -\frac{1}{\sqrt{2}})(2, \frac{2}{\sqrt{2}})\} = \{(0, \frac{2}{3})(1, -\sqrt{2})(2, 0)\}$$

$$\text{ب) } \frac{g}{f} = \{(0, \frac{3}{2})(1, \frac{\sqrt{2}}{2})\} = \{(0, \frac{3}{2})(1, -\frac{\sqrt{2}}{2})\}$$

$$(2, \frac{2}{\sqrt{2}})$$

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

$$\text{الف) } 2f(x) = \{(2, 2)(3, 8)(-2, 4)(1, -4)\}$$

$$\text{ب) } f(x) + 1 = \{(2, 2)(3, 5)(-2, 3)(1, -1)\}$$

$$\text{ج) } 3f(x) + 1 = \{(2, 4)(3, 13)(-2, 7)(1, -5)\}$$

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

$$f(x) = \{(2, 3)(7, 2)(1, 4)(3, 1)(5, 2)\} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} D = 2, 1, 3$$

$$g(x) = \{(1, 0)(2, 1)(-1, 4)(-2, -3)(3, -1)\} \quad 2f = \{(2, 6)(7, 4)(1, 8)(3, 2)(5, 4)\}$$

$$\text{الف) } f - g = \{(2, 2)(1, 4)(3, 2)\}$$

$$\text{ب) } 2f = \{(2, 6)(1, 8)(3, 2)\} = \{(2, 6)(3, -2)\}$$