

$$x \neq 0 \rightarrow f(x) = -a, r, a \rightarrow D_f = [-a, 0] \cup [r, a]$$

$$x \neq 0 \rightarrow f(x) = -r, r, 0, a \rightarrow D_f = (-r, 0) \cup (0, r) \rightarrow -r, -1, 1 \rightarrow n=3$$

$$f(r) - r f(r) = f - 4 + r = r \rightarrow f(r) = -r \quad f(-r) - r f(-r) = (-r)^2 - r(-r) + f$$

$$f(-r) = -f + f + 4 + r = 10$$

$$f(1) = r + r = a \rightarrow f(a) = a - \sqrt{a+r} = \sqrt{r}$$

$$f(a) = r \rightarrow f(r) = f + r = \sqrt{r} \quad \left. \begin{array}{l} \\ \end{array} \right\} r+r=9$$

$$f(x-1) = a(x-1)^2 - b(x-1) + r = a(x^2 + 1 - 2x) - b(x-1) + r = ax^2 + a - 2ax - bx + b + r$$

$$ax^2 + a - 2ax = bx + b + r - ax^2 + bx - r = 4x + r \quad a - 2a = 4 \rightarrow -a = 4$$

$$a - 2a = 4 \rightarrow -a = 4 \rightarrow a = -4$$

$$-r + b = r \rightarrow b = 2r$$

$$a - b = -r - a = -8$$

$$f(x) = \frac{(x+r)^2 + 1}{(x+r)^2 + r} \quad f(\sqrt{r}-r) = \frac{(\sqrt{r})^2 + 1}{(\sqrt{r})^2 + r} = \frac{f}{4} = \sqrt{\frac{r}{4}}$$

$$f(x - \frac{1}{x}) = \frac{x^2 + 1}{x^2} \rightarrow x^2 + \frac{1}{x^2} + r - r \rightarrow (x - \frac{1}{x})^2 + r \rightarrow f(-r) = (-r)^2 + r = 11$$

$$f \rightarrow D_f = \{r, 1, 0, r\} \quad D_g = 9 - x^2 \rightarrow x^2 < 9 \rightarrow -3 < x < 3 \rightarrow [-3, 3]$$

$$D_{\frac{f}{g}} = D_f \cap D_g - \{x | g(x) = 0\} = \{0, 1, r\} - \{\pm 3\} \rightarrow \{0, 1, r\} \rightarrow \left(1, \frac{0}{\sqrt{a}}\right), \left(1, \frac{-r}{\sqrt{r}}\right)$$

$$\left(0, \frac{r}{r}\right)\}$$

$$D_{\frac{g}{f}} = D_g \cap D_f - \{x | f(x) = 0\} = \{0, 1, r\} - \{r\} = \{0, 1\} \rightarrow \left(1, \frac{\sqrt{r}}{-r}\right), \left(0, \frac{r}{r}\right)\}$$

$$\text{الف) } \{ (2, 2), (3, 8), (-5, 4), (1, -4) \}$$

$$\text{ب) } \{ (2, 2), (3, 5), (-5, 3), (1, -1) \}$$

$$\text{ج) } \{ (2, 4), (3, 49), (-5, 13), (1, 13) \}$$

$$\text{د) } \{ (1, 1), (\frac{4}{3}, 4), (-\frac{5}{3}, 2), (\frac{1}{3}, -2) \}$$

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

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

لی تعریف نشده