

$$y = \sqrt{x f(x)} \quad x f(x) > 0 \quad \begin{array}{c|ccccc} x & -5 & -4 & -3 & -2 & -1 \\ \hline x f(x) & -5 & -4 & -3 & -2 & -1 \end{array} \quad D_f = [-5, 0] \cup [2, 5]$$

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$$y = \sqrt{\frac{-x}{f(x)}} \quad \frac{-x}{f(x)} \geq 0 \quad \begin{array}{c|ccccc} x & -4 & -3 & -2 & -1 & 0 \\ \hline \frac{-x}{f(x)} & -4 & -3 & -2 & -1 & 0 \end{array} \quad D_f = (-3, 0) \cup (0, 2)$$

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$$x \geq 2 \rightarrow f(2) - 2f(2) = 4 - 4 + 4 \rightarrow -f(2) \geq 2 \rightarrow -2f(2) \geq 4$$

$$f(-2) - 2f(2) = 4 + 4 + 4 \rightarrow f(-2) \geq 14 - 4 = 10$$

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$$f(f(5)) + f(f(1)) \quad f(5) = 5 - \sqrt{5+9} = 5 - \sqrt{14} = 5 - 3.74$$

$$f(1) = 1 + 3 = 4$$

$$f(2) = 4 + 3 = 7$$

$$f(f(5)) + f(f(1)) = 7 + 4 = 11$$

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

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

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

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

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

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$$f(x) = \frac{x^r + \varepsilon x + \Delta}{x^r + \varepsilon x + \nu} \approx \frac{(x+r)^r + 1}{(x+r)^r + r} \rightarrow f(\sqrt{r}-r) = \frac{(\sqrt{r}-r+r)^r + 1}{(\sqrt{r}-r+r)^r + r} = \frac{(\sqrt{r})^r + 1}{(\sqrt{r})^r + r} = \frac{r+1}{r+r} = \frac{\varepsilon}{r}$$

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

$$f(-r) = (-r)^r + r, 9 + r = 11$$

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الف) $\frac{f}{g}$ $D_f = \{r, 1, 0, \nu\}$

$$9 - x^r > 0 \rightarrow x^r < 9 \rightarrow -r < x < r \rightarrow D_G = [-r, r]$$

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

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$$\frac{g}{f} = \left\{ (r, \frac{\sqrt{r}}{0}), (1, -\frac{\sqrt{r}}{\varepsilon}), (0, \frac{r}{r}) \right\} \rightarrow \frac{g}{f} = \left\{ (1, -\frac{\sqrt{r}}{\varepsilon}), (0, \frac{r}{r}) \right\}$$

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الف) $rf(x) = \{(r, r), (r, 8), (-8, 8), (1, -8)\}$

ب) $f(x) + 1 = \{(r, r), (r, 8), (-8, 8), (1, -1)\}$

ج) $rf'(x) + 1 = \{(r, 8), (r, 89), (-8, 13), (1, 13)\}$

د) $f(rx) = \{(1, 1), (\frac{r}{r}, 8), (-\frac{8}{r}, r), (\frac{1}{r}, -r)\}$

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الف) $f-g$ $D_f = \{r, \nu, 1, r, 8\}$
 $D_g = \{1, r, -1, -r, r\}$ $\rightarrow D_f \cap D_g = \{1, r, r\}$

$$f-g = \{(1, 8), (r, r), (r, r)\}$$

ب) $\frac{rf}{g} = \left\{ (1, \frac{8}{0}), (r, 8), (r, -r) \right\} \rightarrow \frac{rf}{g} = \{(r, 8), (r, -r)\}$

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