

$y = \sqrt{x f(x)}$ $x f(x) > 0$ $D_f = [-5, 0] \cup [2, 5]$
 $0 < x < 5, 2, 5$ $x \mid -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5$
 $x f(x) \mid \underbrace{- \quad - \quad - \quad - \quad -}_{\text{منفی}} \quad \underbrace{+ \quad + \quad + \quad + \quad +}_{\text{مثبت}}$

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$y = \sqrt{\frac{-x}{f(x)}}$ $\frac{-x}{f(x)} \geq 0$ $D_f = (-3, 0) \cup (0, 2)$
 $-x \rightarrow 0$ $f(x) \rightarrow -3, 0, 2, 5$ $x \mid -5 \quad -4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5$
 $\frac{-x}{f(x)} \mid \underbrace{- \quad - \quad - \quad - \quad -}_{\text{منفی}} \quad \underbrace{+ \quad + \quad + \quad + \quad +}_{\text{مثبت}}$
 شامل $-2, -1, 0$
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$x \geq 2 \rightarrow f(2) - 2f(2) = 5 - 4 + 5 \rightarrow -f(2) \geq 2 \rightarrow -2f(2) \geq 4$
 $f(-2) - 2f(2) = 5 + 4 + 5 \rightarrow f(-2) \geq 15 - 5 = 10$

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$f(f(5)) + f(f(1))$ $f(5) = 5 - \sqrt{5+5} = 5 - \sqrt{10} = 5 - 3, 2$
 $f(1) = 2 + 3 = 5$
 $f(2) = 5 + 3 = 8$
 $f(f(5)) + f(f(1)) = 8 + 2 = 10$

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

$ax^2 + a - 2an - bn + b + 2 - an^2 + bn - 2 = 4n+2$
 $-2a = 4 \rightarrow a = -2$
 $a+b = 2 \rightarrow b = 4$

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$a+b = 2 \rightarrow b = 2-a = 2+3 = 5 \rightarrow a-b = -3-5 = -8$

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

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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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