

دامنه $\sqrt{x f(x)}$ می باشد پس $x f(x) \geq 0$ باشد. بنابر این:

$$D_f = [-8, 0] \cup [2, 8]$$

باید جدول کشیده شود

$$x \neq \{-8, 0, 2, 8\} \rightarrow f(x) \neq 0 \rightarrow y = \sqrt{\frac{-x}{f(x)}}$$

$$\frac{x}{f(x)} < 0 \leftarrow \frac{-x}{f(x)} > 0 \leftarrow \frac{-x}{f(x)} \geq 0$$

$$D_f = (-8, 2) - \{0\} \rightarrow \{-2, -1, 1\} \rightarrow \boxed{\text{۳ عدد صحیح}}$$

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

$$\rightarrow f(x) + 4 = x^2 - cx + 2 \rightarrow f(x) = x^2 - cx = x(x-c)$$

$$\rightarrow f(-1) = -1(-1-c) = \boxed{+10}$$

$$f(f(8)) + f(f(1)) = ? \rightarrow f(x)$$

$$f(8) = 4 - \sqrt{8+2} = 4 - 3 = 1 \rightarrow f(f(8)) = f(1) = 1 \times 1 + c = 4$$

$$f(1) = 1 \times 1 + c = 8 \rightarrow f(f(1)) = f(8) = 4$$

$$f(f(8)) + f(f(1)) = 4 + 4 = \boxed{8}$$

$$f(n-1) - f(n) = 4n+2$$

$$f(n) = an^2 - bn + c$$

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

$$a((n-1)^2 - n^2) - b(n-1-n) = 4n+2$$

$$a(1-2n) + b = 4n+2$$

$$a - 2an + b = 4n+2$$

$$a + b = 2an + 4n + 2$$

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

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

$$\boxed{a - b = -4n - 2}$$

$$f(n) = \frac{(n+1)^r + 1}{(n+1)^r + c} \rightarrow f(\sqrt{c}-1) = \frac{(\sqrt{c}-1+1)^r + 1}{(\sqrt{c}-1+1)^r + c} = \frac{c+1}{c+c} = \frac{c+1}{2c} = \frac{r}{c}$$

$$\rightarrow f(\sqrt{c}-1) = \frac{r}{c}$$

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

$$n^r + \frac{1}{n^r} - r$$

$$f(-c) = (-c)^r + r = 9 + r = \underline{\underline{11}}$$

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$$g(n) = \sqrt{9-n^2} \rightarrow 9-n^2 \geq 0 \rightarrow 9 \geq n^2 \rightarrow c \geq n \geq -c \therefore f(n) = \{(r, 0), (1, -4), (0, 3), (4, 1)\}$$

$$g(r) = \sqrt{9-4} = \sqrt{5}, g(1) = \sqrt{9-1} = 2\sqrt{2}, g(0) = \sqrt{9} = 3, g(4) = \sqrt{9-16} = \sqrt{-7} \text{ غير موجود}$$

$$\text{الف) } \frac{f}{g} = \left\{ \left(r, \frac{0}{\sqrt{5}} \right), \left(1, \frac{-4}{2\sqrt{2}} \right), \left(0, \frac{3}{3} \right) \right\} \rightarrow \left\{ (r, 0), (1, -\sqrt{2}), \left(0, \frac{r}{c} \right) \right\}$$

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$$\text{ب) } \frac{g}{f} = \left\{ \left(r, \frac{\sqrt{5}}{0} \right), \left(1, \frac{2\sqrt{2}}{-4} \right), \left(0, \frac{3}{3} \right) \right\} \rightarrow \left\{ \left(1, -\frac{\sqrt{2}}{r} \right), \left(0, \frac{c}{r} \right) \right\}$$

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$$\text{الف) } 2f(n) = \{(r, 2), (c, 1), (-8, 4), (1, -4)\}$$

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$$\text{ب) } f(n)+1 = \{(r, r), (c, d), (-8, c), (1, -1)\}$$

$$\text{ج) } 3f^r(n)+1 = \left\{ \left(r, \frac{r^r}{r^r+1} \right), \left(c, \frac{c^r}{c^r+1} \right), \left(-8, \frac{(-8)^r}{(-8)^r+1} \right), \left(1, \frac{1^r}{1^r+1} \right) \right\} \rightarrow \{(r, r), (c, r), (-8, r), (1, r)\}$$

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$$\text{د) } f(rn) = \{(1, 1), (1, 4), (-8, 2), (0, 4), (-2)\}$$

$$g(n) = \{(1, 0), (2, 1), (-1, 4), (-2, -1), (0, -1)\} \therefore f(n) = \{(r, c), (4, r), (0, 4), (c, 1), (8, r)\}$$

$$\text{الف) } f-g = \{(1, 4-0), (r, \frac{r}{r}-1), (c, \frac{c}{c}-1)\} \rightarrow \{(1, 4), (r, r), (c, r)\}$$

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$$\text{ب) } \frac{r f}{g} = \left\{ \left(1, \frac{r}{0} \right), \left(r, \frac{r}{r} \right), \left(c, \frac{r}{c} \right) \right\} \rightarrow \{(r, 4), (c, -r)\}$$

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