

$y = f(x)$
 $y = \sqrt{x f(x)} \rightarrow D_{f, x}?$
 $x f(x) \geq 0 \rightarrow$ با توجه به علامت باید هم علامت باشد $\rightarrow \begin{cases} \text{ناقصه ۱: } [2, 5] \\ \text{ناقصه ۲: } [-5, 0] \end{cases}$
 $D_f = [-5, 0] \cup [2, 5]$

✓ (۲)

با توجه به تابع $g = \sqrt{\frac{-x}{f(x)}}$ مقام جذر و صحت می شود؟
 $f(x) \neq 0 \rightarrow \begin{cases} x \neq 5 \\ x \neq 2 \\ x \neq 0 \\ x \neq -2 \end{cases} \xrightarrow{\text{علامت}} \frac{-3}{x} + \frac{0}{x} + \frac{2}{x} - \frac{5}{x} \rightarrow D_f = (-3, 0) \cup (0, 2)$
 لقمه شامل ۲، ۱، ۰، ۳ عدد صحیح

✓ (۲)

$f(-2) = 1 \leftarrow f(x) - 2f(x) = x^2 - 3x + 4$
 $f(-2) - 2f(-2) = 4 - 4 + 4 = 4 \rightarrow f(-2) = -2 \rightarrow f(x) = x^2 - 3x \rightarrow f(-2) = 4 + 4 = 1$

✓ (۲)

$f(x) = \begin{cases} x - \sqrt{x-4} & x \geq 4 \\ 2x+3 & x < 4 \end{cases} \rightarrow f(f(5)) + f(f(1)) = ? \rightarrow f(2) + f(5) = 7 + 2 = 9$
 $f(5) = 2$
 $f(1) = 5$
 $f(2) = 7$

✓ (۲)

$f(x) = ax^2 - b$ $\rightarrow f(x-1) - f(x) = 4x+2 \rightarrow a-b = ?$
 if $x=1 \rightarrow f(1) = a-b+2$
 if $x=0 \rightarrow f(0) = 2 \Rightarrow f(0) - f(1) = 1 \rightarrow 2 - (a-b+2) = 1$
 $2 - a + b - 2 = 1$
 $-a + b = 1 \rightarrow a-b = -1$

✓ (۲)

$f(x) = x^r \cdot r_{n+1} \rightarrow \frac{r f(r) + f(-1)}{f^r(r)} = \frac{r+d}{(-1)^r} = V$ $f(r) = 1$ $f(-1) = d$ $f(r) = -1$	6 Ⓟ ✓
$f(x) = \begin{cases} x_{n+1} & n \geq r \\ x^r & n < r \end{cases} \rightarrow \frac{r f(r) - r f(-r)}{f(r)} = ? \rightarrow \frac{r \cdot 1 - r \cdot (-1)}{V} = \frac{r}{V}$	7 Ⓟ ✓
$f = \{(1, 4), (2, 2), (3, 1), (4, 0)\}$ $\frac{f(f(4)) - f(f(2))}{f(4) - 2} = ? \rightarrow \frac{f(1) - f(2)}{4 - 2} = \frac{4 - 2}{2} = 1$	8 Ⓟ ✓
$f(n) = \frac{n^r + r_{n+1} + 9}{n^r + r_{n+1} + d} \rightarrow f(f(\sqrt{r}-1)) = ?$ $f(\sqrt{r}-1) = \frac{(\sqrt{r}-1)^r + r(\sqrt{r}-1) + 9}{(\sqrt{r}-1)^r + r(\sqrt{r}-1) + d} = \frac{r+r - r\sqrt{r} + r\sqrt{r} - 1 + 9}{r+r - r\sqrt{r} + r\sqrt{r} - 1 + d} = \frac{1}{r} = r$ $f(f(\sqrt{r}-1)) = f(r) = \frac{r+1+9}{r+1+d} = \frac{r}{14}$	9 Ⓟ ✓
$f(n) = n^r + \frac{1}{n^r} \rightarrow (f(\sqrt{n}))^r - f(n) = ?$ $f(\sqrt{n}) = n + \frac{1}{n} \rightarrow (n + \frac{1}{n})^r - n^r - \frac{1}{n^r} = n^r + \frac{1}{n^r} + r - n^r - \frac{1}{n^r} = r$	10 Ⓟ ✓