

$\begin{array}{c ccccc} & -7 & -5 & 0 & 2 & 5 \\ \hline x & - & - & 0 & + & + \\ \hline f(x) & + & 0 & - & - & 0 & + \\ \hline af(x) & - & 0 & + & 0 & - & 0 & + & 0 \end{array}$	$D_f = [-5, 0] \cup [2, 5]$	۱
$\begin{array}{c ccccc} & -7 & -5 & 0 & 2 & 5 \\ \hline \frac{-}{\frac{+}{\frac{0}{\frac{+}{\frac{2}{\frac{-}{5}}}}} \end{array}$	$y = \sqrt{\frac{-x}{f(x)}} \Rightarrow \frac{-x}{f(x)} \geq 0, f(x) \neq 0$ $x = \{-5, 0, 2, 5\}$ برابر با صفر است $D_f = (-5, 0) \cup (0, 2) \rightarrow -2, -1, 1$ شامل ۳ عدد صحیح	۲
$\begin{aligned} \text{if } x = 2 &\rightarrow f(2) = 2, f(2) = 2 \rightarrow -f(2) = 2 \rightarrow F(2) = -2 \\ \text{if } x = -2 &\rightarrow f(-2) + 4 = 14 \rightarrow F(-2) = 10 \end{aligned}$		۳
$f(f(5)) + f(f(1)) = 7 + 2 = 9$	$f(x) = \begin{cases} x - \sqrt{x+4}, & x > 2 \rightarrow 5 - \sqrt{5+4} = 2 \\ 2x + 2, & x \leq 2 \\ 2 + 1 + 2 = 5 \end{cases}$	۴
$\begin{aligned} f(x) &= ax^2 - bx + 2 \\ f(x-1) &= a(x-1)^2 - b(x-1) + 2 = ax^2 - 2ax + a - bx + b + 2 \\ f(x-1) - f(x) &= ax^2 - 2ax + a - bx + b + 2 - ax^2 + bx - 2 = \\ &= -2ax + a - bx + b = 4x - 2 \Rightarrow -b(x-1) = -bx + b \\ &a - b = -2 - 5 = -7 \end{aligned}$	$\begin{aligned} -2ax &= 4x \\ \Rightarrow a &= -2 \\ b &= 5 \end{aligned}$	۵

$$f(\sqrt{r}-r) = \frac{(\sqrt{r}-r)^2 + f(\sqrt{r}-r) + 5}{(\sqrt{r}-r)^2 + f(\sqrt{r}-r) + 7} = \frac{r - \cancel{r\sqrt{r}} + r + \cancel{r\sqrt{r}} - 1 + 5}{r - \cancel{r\sqrt{r}} + r + \cancel{r\sqrt{r}} - 1 + 7} = \frac{r}{r} = 1$$

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

درجه اول از n به توان r+1
فصل اول از n به توان r

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

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

$(m - \frac{1}{n})^r + r$ $f(-r) = (-r)^r + r = 11$

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$$f(m) = \{(1, 0), (1, -1), (0, 2), (2, 1)\}$$

$$g(m) = \sqrt{9 - m^2} \rightarrow \sqrt{9 - m^2} \rightarrow 9 - m^2 \geq 0 \rightarrow 9 \geq m^2 \rightarrow m \leq 3$$

$$g(m) = \{(1, 0), (2, 0), (2, \sqrt{5}), (-2, \sqrt{5}), (0, 2), (-1, \sqrt{5}), (1, \sqrt{5})\}$$

$$f \circ g = \{(1, 0), (1, -\frac{1}{\sqrt{5}}), (0, \frac{2}{r})\}$$

$$g \circ f = \{(2, \sqrt{5}), (1, \frac{\sqrt{5}}{-1}), (0, \frac{2}{r})\}$$

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$$f(m) = \{(1, 2), (2, 1), (-2, 1), (1, -1)\}$$

$$f(m) + 1 = \{(1, 3), (2, 2), (-2, 2), (1, 0)\}$$

$$f(f(m) + 1) = \{(1, 4), (2, 3), (-2, 3), (1, 1)\}$$

$$f(f(m)) = \{(1, 1), (\frac{2}{r}, 4), (-\frac{2}{r}, 2), (\frac{1}{r}, -1)\}$$

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

$$f \circ g = \{(1, \frac{1}{2}), (2, 2), (2, -1)\}$$

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