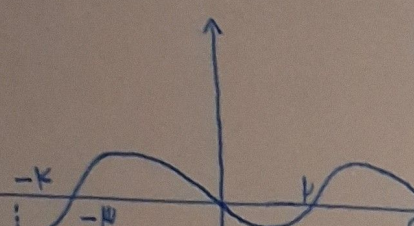
 $y = \sqrt{x f(x)} \rightarrow x f(x) \geq 0$ (۲) ✓	۱ از $x = -\infty$ تا $x = 0$ هم x منفی هم $f(x)$ منفی $\leftarrow$ حاصل ضرب $\oplus$ از $x = 0$ تا $x = 2$ هم x مثبت هم $f(x)$ مثبت است $\leftarrow$ حاصل ضرب $\oplus$ از $x = 2$ تا $x = \infty$ هم x مثبت هم $f(x)$ منفی است $\leftarrow$ حاصل ضرب $\ominus$ $D_f = [-\infty, 0] \cup [2, \infty]$
 $y = \sqrt{\frac{-x}{f(x)}} \rightarrow \frac{-x}{f(x)} \geq 0 \rightarrow f(x) \neq 0$ (۱۲) ✓	۲ $x = -\psi$ $x = 0$ $x = 2$ $L \rightarrow D_f = (-\psi, 0) \cup (0, 2)$ $L \rightarrow -2 < -1 < 1 \in \mathbb{Z} \rightarrow \psi$
$f(x) - \psi f(\psi) = x\psi - \psi x + k \xrightarrow{x=\psi} f(\psi) - \psi f(\psi) = k - \psi + k \rightarrow -f(\psi) = \psi \rightarrow f(\psi) = -\psi$ $f(-\psi) - \psi f(-\psi) = (-\psi)\psi - \psi(-\psi) + k \rightarrow f(-\psi) + k = k + \psi + k \rightarrow f(-\psi) = 10$ (۲) ✓	۳
$f(x) = \begin{cases} x - \sqrt{x+k} & x > \psi \\ \psi x + \psi & x \leq \psi \end{cases}$ $f(\psi) = \psi - \sqrt{\psi+k} \rightarrow \psi - \psi = \psi \rightarrow f(\psi) = k + \psi = \psi$ $f(1) = \psi + \psi = \psi \rightarrow f(\psi) = \psi - \psi = \psi$ (۲) ✓	۴ $f(f(\omega)) + f(f(1)) = ? \rightarrow \psi + \psi = 9$
$f(x) = ax^2 - bx + \psi \rightarrow f(0) = 0 - 0 + \psi \rightarrow f(0) = \psi$ $f(x-1) - f(x) = 4x + \psi \xrightarrow{x=1} f(0) - f(1) = 8 \rightarrow \psi - f(1) = 8 \rightarrow f(1) = -8$ $f(1) = a - b + \psi = -8 \rightarrow a - b = -8$ (۲) ✓	۵

$$f(x) = 2x - 3x + 1 \rightarrow \frac{1f(1) + f(-1)}{f(1)} = \frac{1+0}{1} = \textcircled{1}$$

$$f(1) = 9 - 9 + 1 = 1$$

$$f(-1) = 1 + 3 + 1 = 5$$

$$f(1) = 1 - 9 + 1 = -7$$

$\textcircled{1}$ ✓

$$f(x) = \begin{cases} 3x + 1 & x > 1 \\ 2x & x < 1 \end{cases} \rightarrow \frac{1f(1) - 1f(-1)}{f(1)} = \frac{19 - 1}{1} = \textcircled{\frac{18}{1}}$$

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

$$f(-1) = (-1)^2 = 1$$

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

$\textcircled{1}$ ✓

$$f = \{(1, 4), (4, 1), (1, 9), (9, 1)\} \rightarrow \frac{f(f(1)) - f(f(4))}{f(1) - 1} = \frac{4 - 9}{4 - 1} = \textcircled{0}$$

$$f(1) = 1 \rightarrow f(1) = 4$$

$$f(4) = 4 \rightarrow f(4) = 1$$

$$f(1) = 4$$

$\textcircled{1}$ ✓

$$f(x) = \frac{2x + 3x + 9}{2x + 3x + 9} \rightarrow \frac{(2x + 3x + 9) + 3}{2x + 3x + 9} = \frac{1}{3} = 1$$

$$2x + 3x + 9 \xrightarrow{x = \sqrt{10} - 1} (\sqrt{10} - 1)^2 + 3(\sqrt{10} - 1) + 9 = 10 + 3 - 2\sqrt{10} + 3\sqrt{10} - 3 + 9 = 19$$

$$f(1) = \frac{1 + 1 + 9}{1 + 1 + 9} = \textcircled{\frac{11}{11}}$$

$\textcircled{1}$ ✓

$$f(x) = 2x + \frac{1}{2x} \rightarrow (f(\sqrt{x}))^2 - f(x) \rightarrow 2x + \frac{1}{2x} + 1 - 2x - \frac{1}{2x} = \textcircled{1}$$

$$f(\sqrt{x}) = 2 + \frac{1}{2} \rightarrow (f(x))^2 = 2x + \frac{1}{2x} + 1$$

$\textcircled{1}$ ✓