

1. $x f(x) \geq 0$ $\left\{ \begin{array}{l} \text{مجموعه اول: } [2, 5] \\ \text{مجموعه دوم: } [-5, 0] \end{array} \right\} \Rightarrow D_f = [2, 5] \cup [-5, 0]$

(2) ✓

2. $f(x) \neq 0$ $\frac{-x}{f(x)} \geq 0$ $D_f = (-3, 0) \cup (0, 2)$

(2) ✓

3. $f(x): \mathbb{R} \rightarrow \mathbb{R} : f(x) = x^2 - 3x + 4 \rightarrow f(2) = 2^2 - 3 \cdot 2 + 4 = 10$

(2) ✓

4. $f(0) = 5 - \sqrt{9} = 5 - 3 = 2 \rightarrow f(1) = 5 + 3 = 8$ $\left. \begin{array}{l} f(0) = 2 \\ f(1) = 8 \end{array} \right\} \rightarrow 2 + 8 = 10$

(2) ✓

5. $f(0) - f(1) = 9 - 4 = 5$ $f(1) = a - b + 2 = -6$ $a - b = -8$

(2) ✓

$f(r) = r^r - r \times r + 1 = 9 - 9 + 1 = 1$ $\rightarrow r f(r) = r \times 1 = r$ $f(-1) = (-1)^r - r(-1) + 1 = 1 + r + 1 = 2$ $f(r) = r - r + 1 = 1 \rightarrow f'(r) = (-1)^r = 1$	$\left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \frac{r+0}{1} = \frac{r}{1} = r$ 	6
$f(r) = 1^r - r f(r) = r \times 9$ $f(-r) = (-r)^r = r$ $\xrightarrow{r \rightarrow 1} 1$ $f(r) = 9 + 1 = 10$	$\left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \frac{r \times 9 - 1}{r} = \frac{r \times 9}{r}$ 	7
$f(r) = 1 \rightarrow f(f(r)) = f(1) = 9$ $f(r) = r \rightarrow f(f(r)) = f(r) = 9$ $f(1) = 9 \xrightarrow{-r} = r$	$\left. \begin{array}{l} \\ \\ \\ \end{array} \right\} \frac{9-9}{r} = \frac{0}{r} = 0$ 	8
$\left\{ \begin{array}{l} x^r + rx + 9 = (x+r)^r + 2 \\ x^r + rx + 2 = (x+r)^r + 1 \end{array} \right.$ $f(r) = \frac{r \times 1}{1 \times r}$	$f(\sqrt{r}-r) = \frac{1}{r} = r$ 	9
$f(\sqrt{n}) = n + \frac{1}{n}$ $(f(\sqrt{n}))^r = n^r + \frac{1}{n^r} + r$ $n^r + \frac{1}{n^r} + r - n^r - \frac{1}{n^r} = r$	 	10