

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

$$\frac{u+0}{1} = \boxed{u}$$

$$f(-1) = 1 + 8 + 1 = 10$$

$$f(v) = 8 - 9 + 1 = -1$$

f

$$f(f) = 18 + 1 = 19$$

$$\frac{uq - 1}{v} = \frac{u1}{v}$$

$$f(-v) = f$$

$$f(v) = 9 + 1 = 10$$

v

$$f(\frac{1}{2}) = f(u) = 7$$

$$\frac{9 - 7}{9 - 7} = 1$$

$$f(v) = f(v) = 7$$

$$f(1) = 7$$

1

$$(\sqrt{u}-u)^v + f(\sqrt{u}-u) + 9$$

$$\frac{(\sqrt{u}-u)^v + f(\sqrt{u}-u) + 9}{(\sqrt{u}-u)^v + f(\sqrt{u}-u) + 9} = \frac{u+u-f\sqrt{u}+f\sqrt{u}-1+1}{\frac{u+f\sqrt{u}-f\sqrt{u}-1+1}{-u}} = \frac{1}{u} = u$$

9

$$x^u + \frac{1}{x^v} + u - x^v - \frac{1}{x^v} = \boxed{u}$$

1.

برای آنکه زیرادیکال مثبت تریا مساوی صفر باشد باید x و $f(x)$ هم علامت باشند پس:

$$(-\infty, -4) \cup [2, 5] \rightarrow (-\infty, -4) \cup [2, 5]$$

$-4 \quad -5 \quad 0 \quad 2 \quad 5$

$- \oplus + \oplus - \oplus + \oplus$

۱

$D_f = [-5, 0] \cup [2, 5]$

$$\frac{-x}{f(x)} \geq 0 \rightarrow \frac{x}{f(x)} \leq 0$$

$f(x)$

$(-\infty, -4) \cup (-3, 2) \cup (4, +\infty)$

حالت اول: $f(x) < 0$ و $x > 0$

حالت دوم: $f(x) > 0$ و $x < 0$

۲

$D_g = (-3, 2) - \{0\}$ ۳ عدد صحیح

$b^2 - 4ac = 9 - 4 \cdot 1 \cdot 4 = -7$

بدانجا نیاز بود $\Delta < 0$

۳- ابتدا $f(x)$ را می یابیم:

$$f(x) - 2f(2) = 2 \rightarrow f(x) = -2 \rightarrow f(x) = x^2 - 3x$$

$f(-2) \rightarrow f(-2) = (-2)^2 - 3(-2) = 10$

۳

$a - 3 = 2$ $v + 2 = 9$

$2 + 3 = 5$

$2 + 3 = 5$

$a - 3 = 2$

۴

$ax^2 + a - 2ax - bx + 2 - ax^2 + bx - 2 = 4x + 2 \rightarrow -2a + b + a = 4x + 2$

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

$a = -2$ $b = 4$

۵

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

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

$$f(v) = 8 - 9 + 1 = -1$$

$$\frac{v+0}{1} = \boxed{v}$$

(v) ✓

6

$$f(f) = 1v + 1 = 1v$$

$$f(-v) = f$$

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

$$\frac{vq - 1}{v} = \frac{v1}{v}$$

(v) ✓

v

$$f(f) = f(u) = v$$

$$f(v) = f(v) = v$$

$$f(1) = v$$

$$\frac{9 - v}{9 - v} = 1$$

(v) ✓

1

$$(\sqrt{v}-v)^v + f(\sqrt{v}-v) + 9$$

$$(\sqrt{v}-v)^v + f(\sqrt{v}-v) + v$$

$$f(\sqrt{v}-v) = \frac{(\sqrt{v}-v+1)^v + 6}{(\sqrt{v}-v+1)^v + 1} = \frac{v+6}{v+1} = v$$

(1)

9

$$f(f(\sqrt{v}-v)) = f(v) = \frac{(v+1)^v + 6}{(v+1)^v + 1} = \frac{v1}{1v}$$

$$x^v + \frac{1}{x^v} + v - x^v - \frac{1}{x^v} = \boxed{v} \frac{(v+1)^v + 1}{(v+1)^v + 1}$$

✓ (v)

1.