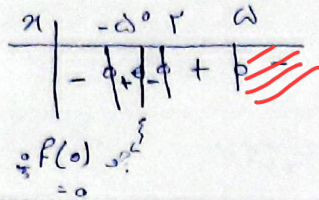
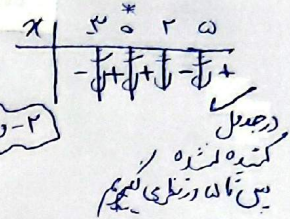


$$x f(x) \geq 0 \rightarrow D_f = [-5, 0] \cup [2, 5]$$



✓ (۲)

بازرسی به شکل $\leftarrow (0, 2) \leftarrow 1 \leftarrow (-2, 0) \leftarrow -1 \leftarrow -2$ و $\frac{-x}{f(x)} \geq 0$ $f(x) \neq 0$ $\frac{-x}{f(x)} \geq 0$ $\frac{-x}{f(x)} \geq 0$



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

✓ (۲)

$$f(-2) - 2f(2) = 4 + 4 + 4 = 12 \Rightarrow f(-2) + 4 = 12 \quad \boxed{f(-2) = 10}$$

$$f(0) - 2f(2) = 0 - 0 + 4 = 4 \Rightarrow -2f(2) = 4$$

$$f(x) - 2f(2) = x^2 - 2x + 4$$

✓ (۲)

$$f(5) \rightarrow 5 - \sqrt{5+4} = 2 \quad f(2) = 2(2) + 3 = 7$$

$$f(1) \rightarrow 2(1) + 3 = 5 \quad f(5) = 5 - \sqrt{5+4} = 2$$

$$f(f(5)) = 7 \rightarrow 7 + 2 = 9$$

$$f(f(1)) = 2 \rightarrow$$

✓ (۲)

$$x=0 \rightarrow f(-1) - f(0) = a + b + 2 - 2 = 4 \rightarrow a + b = 2$$

$$x=1 \rightarrow f(0) - f(1) = 2 - a + b - 2 = 4(1) + 2 \rightarrow b - a = 1$$

$$-2 - a = -1$$

✓ (۲)

$$2b = 10 \rightarrow b = 5, a = -3$$

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

$$f(-1) = 1 + r + 1 = 2$$

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

$$\frac{r+2}{1} = \sqrt{r}$$

✓

6

$$f(r) = r(12 + 1) = 13r = 12$$

$$f(-r) = r(r) = 1$$

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

$$\frac{12-1}{10} = \frac{11}{10}$$

✓

7

$$f(r) = 1 \Rightarrow f(1) = 9 = f(f(r))$$

$$f(r) = r \quad f(r) = 9 = f(f(r))$$

$$f(1) = 9$$

$$\frac{9-9}{9-1} = 0$$

✓

8

$$f(\sqrt{r}-r) \rightarrow \frac{(\sqrt{r}-r)^r + r(\sqrt{r}-r) + 9}{(\sqrt{r}-r)^r + r(\sqrt{r}-r) + 2} = \frac{r+r-r\sqrt{r}+r\sqrt{r}-1+9}{r+r-r\sqrt{r}+r\sqrt{r}-1+2} = \frac{r+1}{r-r} = \frac{1}{r} = \sqrt{r}$$

$$f(x) = \frac{(x)^r + r(x) + 9}{(x)^r + r(x) + 2} = \frac{r+1+9}{r+1+2} = \frac{r+10}{r+3}$$

✓

9

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

$$f(x) = x^r + \frac{1}{x^r} \rightarrow x^r + \frac{1}{x^r} + r - x^r - \frac{1}{x^r} = r$$

✓

10