

$$y = f(x)$$

$$y = \sqrt{x f(x)}$$

$$x f(x) \geq 0$$

$$D_f = [-2, 0] \cup [2, 4]$$

	-2	-1	0	1	2	4
x	-	-	0	+	+	+
$f(x)$	+	0	-	-	0	+
$x f(x)$	-	0	0	-	0	+

$$y = \sqrt{\frac{-x}{f(x)}}$$

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

$$D_f = (-3, 0) \cup (0, 2)$$

$$\begin{aligned} -3 < x < 0 &\rightarrow -1 < x < 0 \\ 0 < x < 2 &\rightarrow 1 < x < 2 \end{aligned}$$

معامله ۳ عدد.

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

جایگذاری: $f(2) - 2f(f(2)) = 4 - 2 + 4 = 2$
 $f(2) = -2$

$f(-2) - 2f(f(-2)) = 4 + 2 + 8 = 14$
 $f(-2) = 10$

$f(f(0)) + f(f(1)) = 7 + 2 = 9$
 $\underbrace{f(0)}_{2 \times 2 = 4} + \underbrace{f(1)}_{2 \times 1 = 2}$

$$f(x-1) + f(x) = 7x + 2$$

$$f(0) + f(1) = 7 + 2$$

$$f(x) = ax^2 - bx + 2 \rightarrow f(1) = a - b + 2$$

$$\rightarrow f(0) = 2$$

$$\begin{aligned} 2 + a - b + 2 &= 7 + 2 \\ a - b &= 3 \end{aligned}$$

$$f(x) = \frac{x^2 + 9x + 14}{x^2 + 15x + 36} = \frac{x^2 + 9x + 8 + 6}{x^2 + 9x + 8 + 36} = \frac{(x+2)^2 + 1}{(x+2)^2 + 36}$$

$$\frac{(\sqrt{3} - 2 + 2)^2 + 1}{(\sqrt{3} - 2 + 2)^2 + 36} = \frac{1}{36}$$

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

$$(-3)^2 + 2 \rightarrow 9 + 2 = 11$$

$$\frac{7}{9} = \left\{ \left(0, \frac{7}{9}\right), \left(1, \frac{-7}{\sqrt{18}}\right), \left(2, \frac{0}{\sqrt{18}}\right) \right\}$$

(الف)

$$\frac{9}{7} = \left\{ \left(0, \frac{9}{7}\right), \left(1, \frac{\sqrt{18}}{-7}\right) \right\}$$

(ب)

$$f(x+1) = \left\{ (2, 2), (3, 4), (-5, 2), \left(1, \frac{1}{-1}\right) \right\}$$

$$f^2(x) = \left\{ (2, 2), (3, 4), (-5, 4), \left(1, \frac{-4}{-1}\right) \right\}$$

(الف)

$$f(5x) = \left\{ (1, 1), \left(\frac{5}{2}, 4\right), \left(-\frac{5}{2}, 2\right), \left(\frac{1}{5}, -2\right) \right\}$$

$$f^2(x) + 1 = \left\{ (2, 4), (3, 6), (-5, 6), \left(1, \frac{6}{-1}\right) \right\}$$

(ج)

$$f - g = \left\{ (1, 4), (2, 2), (3, 2) \right\}$$

(د)

$$\frac{2f}{g} = \left\{ (2, 2), (3, -2) \right\}$$

(هـ)