

$$\sqrt{x f(x)} \geq 0$$

$$x f(x) \geq 0 \rightarrow \text{نقطه } 0, 2, 5 \text{ و } -5 \text{ صفر شود}$$

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

	-5	-2	0	2	5
x		-	-	+	+
$f(x)$		+	0	-	+
ρ		-	+	+	+

5

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

نقطه 3 و 2 و 5 صفر شود

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

$$D_f = (-3, 2) - \{0\} \rightarrow \text{3 عدد صحیح}$$

	-5	-3	0	2	5
$-x$		+	+	0	-
$f(x)$		-	0	+	0
ρ		-	+	+	-

1, 5

$x=2$

$$f(2) - 2f(2) = 2^2 - 3(2) + 4 \Rightarrow -f(2) = 2$$

$$-f(2) \quad f(2) = -2$$

5

$$x = -2 \quad f(-2) - 2f(-2) = (-2)^2 - 3(-2) + 4$$

$$f(-2) = 10$$

3

$$f(1) = 2(1) + 3 = 5$$

$$f(f(1)) = f(5) = 5 - \sqrt{9} = 5 - 3 = 2$$

$$f(5) = 2$$

$$f(f(5)) = f(2) = 2(2) + 3 = 7$$

$$2 + 7 = 9$$

5

4

$$f(x) = ax^2 - bx + 2$$

$$f(1) = a - b + 2$$

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

$$f(1-1) - f(1) = 4 + 2 = 6$$

$$f(0) - f(1) = 6$$

$$f(0) = a(0)^2 - b(0) + 2 = 2 \Rightarrow \begin{cases} 2 - f(1) = 6 \\ f(1) = -4 \end{cases}$$

$$f(1) = a - b + 2 = -4$$

$$a - b = -6$$

5

5

$\frac{(x+2)^4+1}{(x+2)^4+3} = \frac{(\sqrt{3}-2+2)^4+1}{(\sqrt{3}-2+2)^4+3} = \frac{3+1}{3+3} = \frac{4}{6} = \frac{2}{3}$	۶
$\frac{x^4+1}{x^2} \xrightarrow{\div x^2} \frac{1+\frac{1}{x^2}}{\frac{1}{x^2}} = x^2 + \frac{1}{x^2}$ $x - \frac{1}{x} = -3 \quad \left(x - \frac{1}{x}\right)^2 = (-3)^2 \quad x^2 - 1 + \frac{1}{x^2} = 9$ $x^2 + \frac{1}{x^2} = 11$	۷
$\frac{f}{g} = \left\{ \left(2, \frac{0}{\sqrt{5}}\right) \left(1, \frac{-4}{\sqrt{11}}\right) \left(0, \frac{2}{3}\right) \right\}$ اول مولفه های اول مشترک $\leftarrow 2, 1, 0$ $\frac{g}{f} = \left\{ \left(2, \frac{\sqrt{5}}{0}\right) \left(1, \frac{\sqrt{11}}{-4}\right) \left(0, \frac{3}{2}\right) \right\} = \left\{ \left(1, \frac{\sqrt{11}}{-4}\right) \left(0, \frac{3}{2}\right) \right\}$	۸
$\text{الف) } \left\{ (2,2) (3,8) (-5,4) (1,-4) \right\} \quad \text{ب) } \left\{ (2,2) (3,5) (-5,3) (1,-1) \right\}$ $\text{ج) } \left\{ (2,4) (3,49) (-5,13) (1,13) \right\} \quad \text{د) } \left\{ (1,1) \left(\frac{3}{4}, 4\right) \left(-\frac{5}{4}, 2\right) \left(\frac{1}{4}, -2\right) \right\}$	۹
$\text{الف) } \left\{ (1,4) (2,2) (3,2) \right\}$ $\text{ب) } 2f: \left\{ (2,4) (7,4) (1,1) (3,2) (5,4) \right\}$ اولی که مولفه های اولش با ۱ یکسانه $\therefore 3, 2, 1$ $\left\{ \left(2, \frac{4}{1}\right) \left(3, \frac{2}{-1}\right) \left(1, \frac{1}{0}\right) \right\}$	۱۰

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