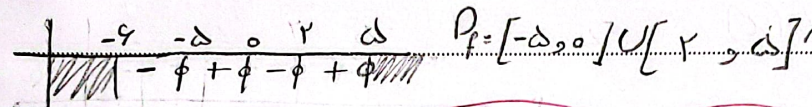
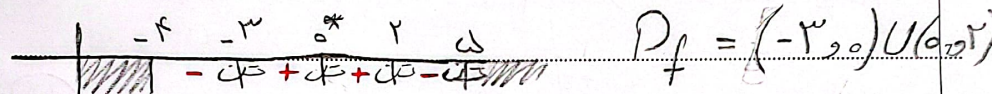


$$y = \sqrt{x f(x)} \quad x f(x) \geq 0$$



$$y = \sqrt{\frac{-x}{f(x)}} \quad \frac{-x}{f(x)} \geq 0 \quad f(x) \neq 0$$



اعداد صحیح در دامنه -2 و -1 و 1 و 2 3

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

$$f(-2) \quad \text{3}$$

$$x=2 \rightarrow f(2) - 2f(2) = 4 - 9 + 4 \rightarrow f(2) = -2$$

$$x=-2 \rightarrow f(-2) + 4 = 4 + 9 + 4 \rightarrow f(-2) = 10$$

$$f(f(4)) + f(f(1)) \rightarrow f(2) + f(4) = 7 + 2 = 9$$

$$4$$

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

$$5$$

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

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

$$= -2ax + a + b = 9x + 2 \rightarrow -2a = 9 \rightarrow a = -\frac{9}{2}$$

$$\rightarrow a + b = 2 \rightarrow b = 5$$

PARAMOUNT

$$a - b = -1$$

$$1. f(x) = \frac{x^2 + 5x + 2}{x^2 + 5x + 7} = \frac{(x+1)(x+2)}{(x+1)(x+7)} \quad (2)$$

$$3. f(\sqrt{3}-2) = \frac{(\sqrt{3}-2)^2 + 5(\sqrt{3}-2) + 2}{(\sqrt{3}-2)^2 + 5(\sqrt{3}-2) + 7} = \frac{3 - 4\sqrt{3} + 4 + 5\sqrt{3} - 10 + 2}{3 - 4\sqrt{3} + 4 + 5\sqrt{3} - 10 + 7} = \frac{5\sqrt{3} - 1}{5\sqrt{3} - 1 + 7}$$

$$\Rightarrow \frac{5}{6} + \left(\frac{2}{3}\right)$$

$$7. f\left(x - \frac{1}{x}\right) = \frac{x^2 + 1}{x^2} = x^2 + \frac{1}{x^2} \quad (✓)$$

$$9. \left(x - \frac{1}{x}\right)^2 = x^2 + \frac{1}{x^2} + 2 = (-3)^2 = 9 \Rightarrow x^2 + \frac{1}{x^2} = 7 \quad (11)$$

$$11. \text{الف) } \frac{f}{g} = \left\{ (2, 0), (1, -\sqrt{2}), (0, \frac{2}{3}) \right\} \quad (1)$$

$$15. \text{ب) } \frac{g}{f} = \left\{ (1, -\frac{\sqrt{2}}{2}), (0, \frac{2}{3}) \right\} \quad 2, \frac{\sqrt{2}}{2}$$

$$17. \text{الف) } 2f(x) = \left\{ (2, 2), (3, 1), (\frac{1}{2}, 4), (1, \frac{1}{2}) \right\} \quad (9)$$

$$18. \text{ب) } f(x) + 1 = \left\{ (2, 2), (3, 5), (\frac{1}{2}, 3), (1, -1) \right\}$$

$$19. \text{ج) } 3f^2(x) + 1 = \left\{ (2, 4), (3, 9), (\frac{1}{2}, 1), (1, 3) \right\}$$

$$20. \text{د) } f(2x) = \left\{ (1, -1) \right\}$$

P

Date :

Subject :

الف $f \cdot g = \{(1, 4), (2, 2), (3, 2)\}$ 1

ب $\frac{f}{g} = \{(2, 3), (3, -1)\}$ 4