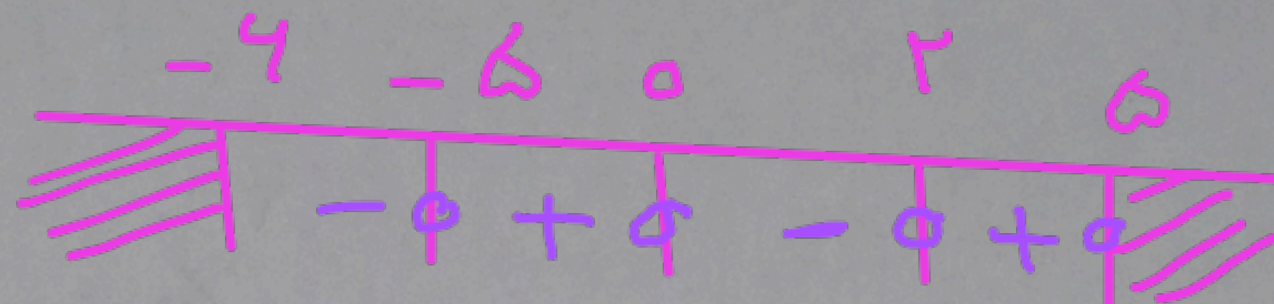


$$f(x), x \in \mathbb{R}^+$$

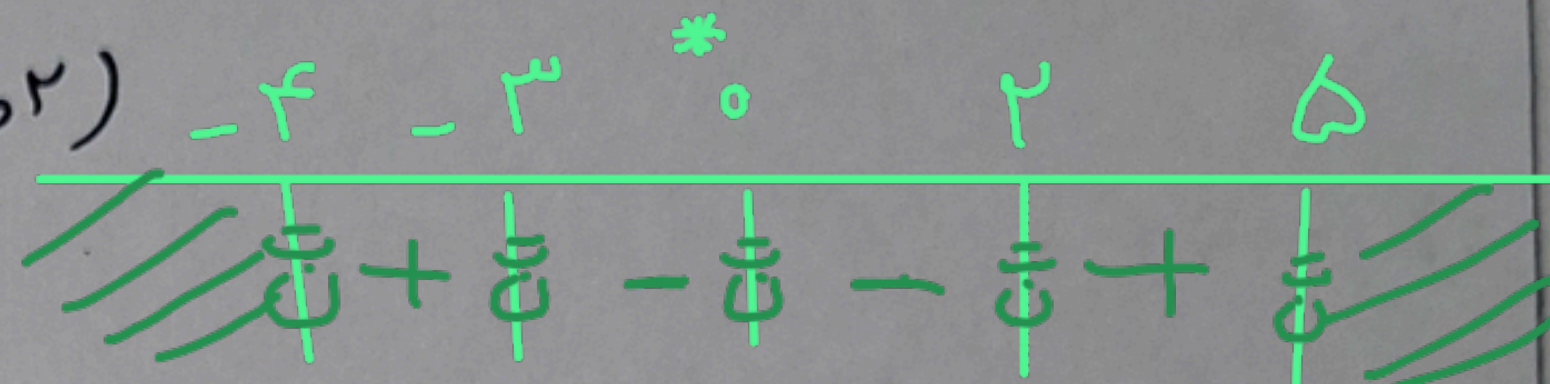
$$[5, 0] \cup [2, 5]$$



۱, ۵

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

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



مردمهای صحیح : -2, -1, 1

63

۱, ۵

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

$$f(2) = -2$$

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

$$f(-2) = 10$$

۲ ✓

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

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

$$7 + 2 = 9$$

۲ ✓

$$a(x-1)^2 - b(x-1) + 2$$

$$ax^2 - 2ax + a - bx + b + 2 - ax^2 + bx - 1 = 4x + 2$$

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

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

$$\begin{cases} -2a = 4 \rightarrow a = -2 \\ a + b = 2 \rightarrow b = 4 \end{cases}$$

$$a - b = -6$$

۱, ۵

۲, ۵

۵

$$f(3) = 9 - 9 + 1 = 1$$

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

$$f(2) = 4 - 9 + 1 = -4$$

$$\frac{(3 \times \cancel{-1}) + \overset{+1}{1}}{(-1)^2} = \frac{3}{1} = 3$$

Ⓟ ✓

$$f(4) = 16 + 1 = 17$$

$$f(-2) = 4$$

$$f(2) = 4 + 1 = 5$$

$$\frac{(3 \times \cancel{17}) - \overset{1}{1}}{4} = \frac{51}{4}$$

Ⓟ ✓

$$\frac{f(\cancel{f(4)}) - f(\cancel{f(2)})}{f(1) - 2} = \frac{4 - 4}{4 - 2} = 0$$

Ⓟ ✓

$$x^2 + \frac{1}{x} \quad x: \sqrt{3}-2 \Rightarrow 3 + \frac{1}{\sqrt{3}-2} + \frac{1}{\sqrt{3}-2} - 1 = -1$$

$$f(\sqrt{3}-2): \frac{-1+9}{-1+5} = \frac{8}{4} = 2$$

$$f(2) = \frac{4+1+9}{4+1+5} = \frac{14}{10} = \frac{7}{5}$$

Ⓟ ✓

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

$$f(\sqrt{x}) = x + \frac{1}{x} \Rightarrow (x + \frac{1}{x})^2 = x^2 + 2 + \frac{1}{x^2}$$

Ⓟ ✓

$$\cancel{x^2} + 2 + \frac{1}{\cancel{x^2}} - \cancel{x^2} - \frac{1}{\cancel{x^2}} = 2$$