

14, 25

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$$2x^2 - 4x + 2 + y^2 + 4y + 9 - 1 - 9 = -K$$

$$2(x-1)^2 + (y+3)^2 = 11 - K \rightarrow K = 11$$

تابع شب نقطه (1, -3)

0

$$a^2 + fa = 2a + a + 1$$

$$a^2 + a - 2 = 0$$

$$a = 1 \quad a > 0$$

$$x \geq 1$$

$$x+1 \geq 2$$

$$x+1 \leq -2$$

$$x \leq -3$$

فیه بقیه تابع باید طول

باز نویسی شده

$$4x - a \geq 0$$

$$x \geq \frac{a}{4}$$

$$x \cdot 4 = \frac{a}{4} \quad a = 12$$

$$b - cx \geq 0$$

$$x \leq \frac{b}{c}$$

$$x = 2 = \frac{b}{c} \quad b = 7$$

$$\left. \begin{array}{l} 1 > 1 \\ 1 > -2 \end{array} \right\} \Rightarrow f(1) = 2^2 + 4 \cdot 1 = 6 \quad \checkmark$$

(1, 6)

$$f(x) = \begin{cases} x^2 - b & x > 1 \\ a + 2x & -3 \leq x \leq 1 \\ x^2 - b & x \leq -3 \end{cases}$$

(1, 5)

$$\frac{b}{a} = \frac{7}{12} = \frac{1}{2} \quad \checkmark$$

(2)

الف) $x+1 \geq 0$
 $\checkmark x \geq -1$
 $x \neq c$

$$x^2 + 2x + 4 = 0$$

$$\Delta = 4 - 16 < 0 \quad \checkmark$$

$$x^2 + 2x + 4 > 0$$

$$4 - x \geq 0$$

$$\checkmark 4 \geq x$$

$$D_f = [-1, 4] - \{c\}$$

ب) $[x] - 4 \geq 0$
 $[x] \geq 4$
 $\checkmark x \geq 4$

$$4 - [x] \geq 0$$

$$[x] \leq 4$$

$$x < 5$$

$$D_f = \emptyset \quad \checkmark$$

(2)

الف) $\frac{(x-c)(x+2)}{(x^2-4)(x^2-9)} = \frac{(x-c)(x+2)}{(x-2)(x+2)(x-c)(x+c)} \geq 0$

$$\begin{array}{ccccccc} x & - & c & & 2 & & c \\ | & & | & & | & & | \\ + & - & - & + & - & - & + \end{array}$$

$$D_f = (-\infty, -c) \cup (2, +\infty) - \{c\} \quad \checkmark$$

(2)

ب) $\frac{x^2 - 2x^2 - 5x + 7}{-x^2 + x^2} \cdot \frac{x-1}{x^2 - x - 7}$

$$\frac{-x^2 - 5x + 7}{+x^2 - x}$$

$$\frac{-7x + 7}{+7x - 7}$$

$$0$$

$$\frac{x^2 + 2x^2 - 5x - 7}{-x^2 - x^2} \cdot \frac{x+1}{x^2 + x - 7} \cdot \frac{(x-1)(x-c)(x+2)}{(x+1)(x+c)(x-2)} \geq 0$$

$$\frac{x^2 - 5x - 7}{-2x^2 - x}$$

$$\frac{-7x - 7}{+7x + 7}$$

$$\begin{array}{ccccccc} - & c & - & 2 & - & 1 & 1 & 2 & c \\ | & & | & & | & & | & & | \\ + & - & - & + & - & - & + & - & + \end{array}$$

$$D_f = (-\infty, c) \cup [-2, -1) \cup [1, 2) \cup [c, +\infty)$$

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الف)

$$[-x] - 2 \geq 0$$

$$[-x] \geq 2$$

$$-x \geq 2 \quad x \leq -2$$

$$D_f = (-\infty, -2] \quad \checkmark$$

(2)

ب) $[x]^2 - 2[x] - 3 = 0$

$$([x] - 3)([x] + 1) = 0$$

$$[x] = 3 \quad [x] = -1$$

$$3 \leq x < 4 \quad -1 \leq x < 0$$

$$D_f = \mathbb{R} - \{ [0, 4) \cup [-1, 0) \} \quad \checkmark$$

الف)

$$x \neq \frac{k\pi}{4}$$

$$\tan x + 1 = 0$$

$$x \neq k\pi + \frac{3\pi}{4}$$

$$D_f = \mathbb{R} - \left\{ \frac{k\pi}{4} \cup \left\{ k\pi + \frac{3\pi}{4} \right\} \right\} \quad \checkmark$$

-1

(2)

ب)

$$1 - 4 \sin^2 x \geq 0$$

$$4 \sin^2 x \leq 1$$

$$\sin^2 x \leq \frac{1}{4}$$

$$-\frac{1}{2} \leq \sin x \leq \frac{1}{2}$$

$$D_f = \left[k\pi + \frac{5\pi}{4}, k\pi + \frac{7\pi}{4} \right] \quad \checkmark$$

$$\text{سادس } k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}$$

الف)

$$1 - \log_{\frac{1}{2}} x \geq 0$$

$$\checkmark \log_{\frac{1}{2}} x \leq 1$$

$$x - 1 > 0$$

$$x > 1$$

$$x - 1 \leq \frac{1}{2} \Rightarrow x \leq \frac{3}{2}$$

$$\left[\frac{3}{2}, +\infty \right)$$

$$D_f = \left(1, \frac{3}{2} \right] \quad \checkmark$$

چون بین صفر و یک است
و جهت نامعادله عوض همیشه

-9

ب)

$$x(x-1) \geq 0$$

$$\frac{0}{+0-0+} \quad \checkmark$$

$$1 - \log_{\frac{1}{2}} x^2 - c \neq 0$$

$$\log_{\frac{1}{2}} x^2 - c \neq 1$$

$$x^2 - c \neq 2$$

$$x^2 - c \neq 4$$

$$x \neq -1 \quad x \neq 1$$

$$x(x-c) > 0$$

$$\frac{0}{+0-0+} \quad \checkmark$$

(1,5)

$$D_f = ((-\infty, 0) - \{-1\}) \cup ((c, +\infty) - \{1\}) \quad \checkmark$$

الف)

$$x^2 - 2x \geq 1$$

$$x^2 - 2x \geq 3$$

$$x^2 - 2x + c \leq 0$$

$$\frac{1}{+0-0+}$$

$$D_f = [1, c] \quad \checkmark$$

(1,5)

-10

ب)

$$\frac{cx+a}{2x+1} \in \mathbb{W}$$

$$x \in -\frac{1+W-a}{2W-c}$$

$$x \in \frac{a-1+W}{2W-c} \rightarrow D = \left\{ x \mid x = -\frac{1+W-a}{2W-c}, W \in \mathbb{W} \right\}$$