

6

7 ریکتا (مقانی) / دوازدهم دختره

نیمه ۳ خردا

۱۷, ۷, ۵

تالیف کار

8

$$9 \quad f(2x+1) + f(x+5) = 2x + f(2) \Rightarrow y = \sqrt{f(x) - 2x^2} \xrightarrow{Rf} \textcircled{1}$$

$$10 \quad 2x+1 = 2 \Rightarrow x = 1 \Rightarrow f(2) + f(6) = 2 + f(2) \Rightarrow f(6) = 2$$

$$11 \quad f(x) = ax + b \Rightarrow 2ax + a + b + ax + 2a + b = 2x + 2 \textcircled{2}$$

$$12 \rightarrow 3ax + 3a + 3b = 2x + 2 \rightarrow a = 1 \text{ و } b = 0$$

$$13 \quad f(x) = x \Rightarrow y = \sqrt{x - x^2} \rightarrow x - x^2 \rightarrow -\frac{b}{2a} = -\frac{1}{2} = \frac{1}{2} = x'_{\text{نقطه}}$$

$$14 \Rightarrow \frac{1}{2} - \frac{1}{2} = \boxed{\frac{1}{2} = y'_{\text{نقطه}}} \xrightarrow{2x} (-\infty, \frac{1}{2}] \xrightarrow{\text{دامنه}} [0, \frac{1}{2}] \in Rf$$

15

$$16 \quad f(x) = x^2 - 2x \xrightarrow{Df} \mathbb{R} - \{a, b\} \text{ و } Rf \rightarrow [c, +\infty) - \{1\} \textcircled{3}$$

$$17 \quad f\left(\frac{a+b}{2}\right) = ? \quad \text{نقطه میانه - میانگین دو عدد حقیقی؟}$$

$$18 \quad \frac{x^2 - 2x}{x+2} = \frac{x(x-2)}{x+2} = x'(x-2) \rightarrow x^2 - 2x = 1 \rightarrow x^2 - 2x - 1 = 0$$

$$19 \quad (x-2)(x+2) = 0 \rightarrow x = 2 \text{ و } x = -2 \Rightarrow Df = \mathbb{R} - \{2, -2\}$$

$$f(x) = x^2 - 2x \xrightarrow{Rf} \left[-\frac{1}{2}, +\infty\right) \rightarrow \left[-\frac{1}{2}, +\infty\right) - \{1\} \in Rf \textcircled{4}$$

$$21 \quad f\left(\frac{a+b}{2}\right) = f\left(\frac{2-2}{2}\right) = f(-1) \Rightarrow (-1)^2 - 2(-1) = 3$$



Senobar

$$y = \sqrt{x^2 + ax^2 + bx - 1} \xrightarrow{Df} [a, b] \xrightarrow{Rf} ? \quad (4) \quad (5)$$

$$y = \sqrt{(x-2)^2} = \sqrt{x^2 - 4x^2 + 12x^2 - 1} = x - 2 \rightarrow a = -7, b = 15$$

$$-2 \leq x \leq 15 \xrightarrow{-2} -1 \leq x - 2 \leq 10 \rightarrow \{Rf \in [-1, 10]\} \quad (6)$$

$$y_1 = \left(\frac{x+1}{1-x}\right)^{\frac{1}{a}} \quad \text{و} \quad y_2 = \left(\frac{ax^2-1}{x^2+b}\right) \Rightarrow Df_1 = Rf_2 \quad (7)$$

$$a+b=? \quad Df = [-1, 1) \quad \text{در بیان ها کسی با این بیان منی باشد}$$

$$Df \Rightarrow \log_b a = c \rightarrow b^c = a \Rightarrow a > 0 \text{ و } b > 0 \text{ و } b \neq 1$$

$$\textcircled{I} \quad \frac{x+1}{1-x} > 0 \rightarrow \frac{-1}{-1} \frac{1}{1} = -1 \Rightarrow [-1, 1) \quad \text{و} \Rightarrow [-1, 1) - \{0\}$$

$$\textcircled{II} \quad \frac{x+1}{1-x} \neq 1 \rightarrow x+1 \neq 1-x \rightarrow x \neq 0 \quad (1)$$

$$b=1 \quad a=1 \rightarrow a+b=2$$

$$Rf \Rightarrow yx^2 + yb = ax^2 - 1 \Rightarrow x^2 = \frac{-yb-1}{y-a} \Rightarrow x = \pm \sqrt{\frac{-yb-1}{a-y}}$$

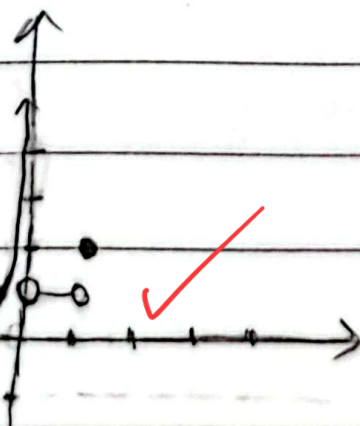
$$\Rightarrow \frac{-yb-1}{y-a} \geq 0 \rightarrow \frac{-1}{1} \frac{1}{1} = -1 \rightarrow \text{در این جا ۲ حالت می آید}$$

$$1) \Rightarrow a=1, b=-1 \rightarrow y = \frac{x^2-1}{x^2-1} \rightarrow \text{در اینجا } y=0 \text{ جزء بردی شود و حذف شود}$$

$$2) \Rightarrow a=-1, b=1 \rightarrow y = \frac{-x^2-1}{x^2-1} \rightarrow 0 \rightarrow a+b = -1+1 = 0 \quad (2)$$

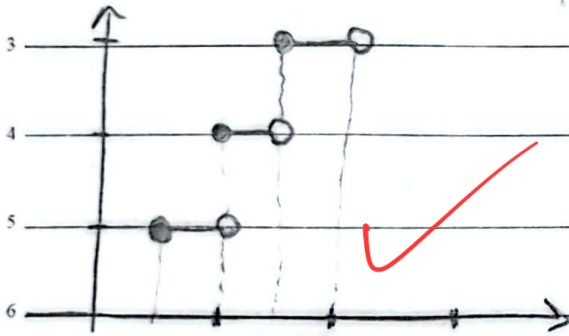
$$y = \left\lfloor \frac{x}{x} \right\rfloor + \left\lfloor \frac{|x|}{x} \right\rfloor \xrightarrow{[-1, 1]} x \in [-1, 0) \rightarrow y = -\frac{1}{x} - 1 \quad (9) \quad (16)$$

$$x \in (0, 1) \rightarrow y = 0 + 1 = 1 \quad / \quad x \in \{1\} \rightarrow y = 2 \quad (17)$$



$$y = [x] + \left[x + \frac{1}{x}\right] \quad \left[\frac{1}{x} > 2\right] \rightarrow x \in \left[\frac{1}{2}, 1\right) \rightarrow 0 + 1 = 1 \quad (4)$$

$$x \in \left[-1, \frac{1}{2}\right) \rightarrow 1 + 1 = 2 \quad / \quad x \in \left[\frac{1}{2}, 2\right) \rightarrow 1 + 2 = 3$$



⇒ از ۳ بار خط ✓

(4)

$$\left|\frac{x+1}{ax+5}\right| < 1 \rightarrow (b > +\infty), \quad a-b=? \quad (5)$$

این در این سوال گفته چون سر باز است و باز است پس اگر $x=b$ $a=1$ $b=-2$

$$\left|\frac{b+1}{ab+5}\right| = 1 \Rightarrow \text{I} \quad \frac{b+1}{ab+5} = 1 \rightarrow b+1 = ab+5$$

$$a-b=3$$

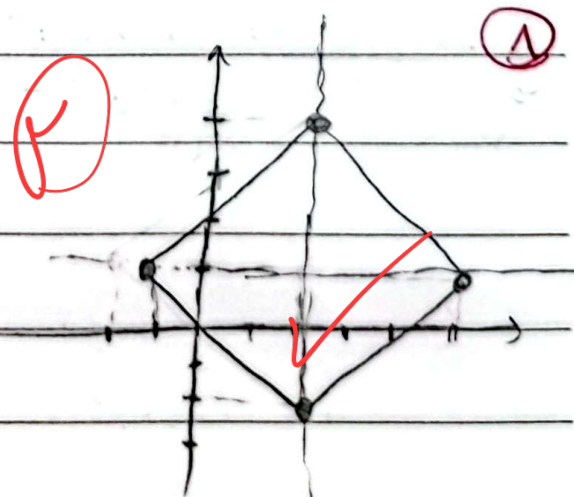
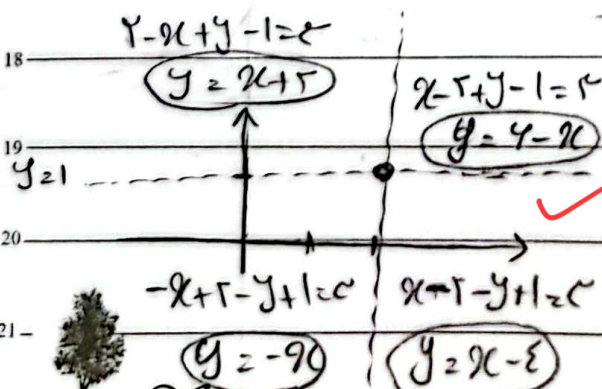
$$\Rightarrow \boxed{b(1-a) = 4} \quad \text{و} \quad \text{II} \quad \frac{b+1}{ab+5} = -1 \rightarrow b+1 = -ab-5$$

$$\Rightarrow \boxed{b(a+1) = -6}$$

$$\Rightarrow \frac{b(-6)}{a+1} = \frac{4}{1-a} \Rightarrow \frac{-6b}{a+1} = \frac{4}{1-a} \Rightarrow -6b(1-a) = 4(a+1) \Rightarrow -6b + 6ab = 4a + 4 \Rightarrow 6ab - 6b = 4a + 4 \Rightarrow 6b(a-1) = 4(a+1) \Rightarrow 3b(a-1) = 2(a+1)$$

$$\Rightarrow \frac{b(-6)}{a+1} = \frac{4}{1-a} \Rightarrow \frac{-6b}{a+1} = \frac{4}{1-a} \Rightarrow -6b(1-a) = 4(a+1) \Rightarrow -6b + 6ab = 4a + 4 \Rightarrow 6ab - 6b = 4a + 4 \Rightarrow 6b(a-1) = 4(a+1) \Rightarrow 3b(a-1) = 2(a+1)$$

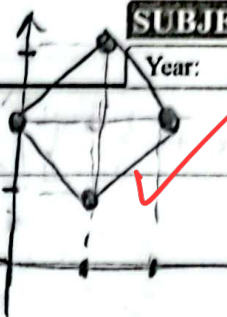
$$|x-2| + |y-1| = 5$$



(A)

Senobar 2-5

الف $|x-1| + |y-2| = 1$

مركز $\frac{1}{2}$ 

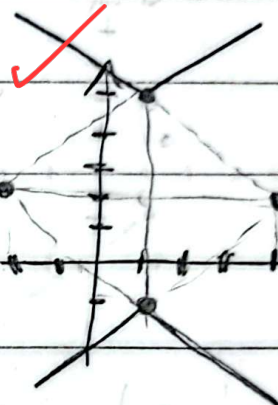
9

2

ب $|x-1| - |y-2| = -2$

مركز $\frac{1}{2}$

$$\rightarrow |y-2| - |x-1| = 2$$



$$y = 3x + |ax + b| \quad \mathbb{R}^+ \rightarrow \mathbb{R}$$

$$-\frac{b}{a}$$

10

$$(a+3)(3-a) > 0 \leftarrow m_1 m_2 > 0 \leftarrow$$

$$(3-a)x - b \quad | \quad (4a)x + b$$

$$-3 < a < 3$$

داریم حالت پایه در نظر بگیریم ۲ سبب با صراحت یا صراحت - ان

$$+ \text{هوا} \Rightarrow \begin{cases} 3+a > 0 \rightarrow a > -3 \\ 3-a > 0 \rightarrow 3 > a \end{cases}$$

$$\Rightarrow (-3, 3) \in \mathbb{R}$$

$$- \text{هوا} \Rightarrow \begin{cases} 3+a < 0 \rightarrow a < -3 \\ 3-a < 0 \rightarrow 3 < a \end{cases}$$

$$\Rightarrow (-\infty, -3) \cup (3, +\infty) \in \mathbb{R}$$

$$\Rightarrow \mathbb{R} - \{-3, 3\}$$

1, 10

