

فرام فرزند

تکلیف شما را دیدم

۱۸, ۷۵

$$\left. \begin{aligned} f(a) + a f(-a) &= 2|a| + 1 \\ f(-a) - a f(a) &= 2|a| + 1 \end{aligned} \right\} \rightarrow f(-a) = 2|a| + a f(a) + 1 \quad (1)$$

$$f(a) + a(2|a| + a f(a) + 1) = 2|a| + 1 \quad (2)$$

$$f(a) + 2a|a| + a^2 f(a) + a = 2|a| + 1$$

$$f(a)(1 + a^2) + (2a|a| + a - 1) = 2|a| - a \cdot 2|a|$$

$$(1 + a^2) f(a) = \frac{2|a|(1 - a) + (1 - a)}{1 + a^2}$$

$$f(a) = \frac{(1 - a)(2|a| + 1)}{1 + a^2}$$

باینتراری

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$$\left. \begin{aligned} f(a) + f(0) &= a^2 - 5a + 9 \\ f(0) + f(0) &= 9 \rightarrow 2f(0) = 9 \end{aligned} \right\} \begin{aligned} a &= 0 \\ \rightarrow f(0) &= \frac{9}{2} \end{aligned}$$

$$\rightarrow f(a) = a^2 - 5a + \frac{9}{2} \rightarrow f(a^2) = a^4 - 5a^2 + \frac{9}{2}$$

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$$y = \frac{a^2 + a + 1}{a - 1} \rightarrow y(a - 1) = a^2 + a + 1 \rightarrow a^2 + (1 - y)a + y + 1 = 0$$

$$a = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow a = \frac{y - 1 \pm \sqrt{(1 - y)^2 - 4(y + 1)}}{2}$$

$$\Rightarrow y^2 - 4y - 1 > 0 \rightarrow (y - 1)(y + 1) > 0$$

$$\rightarrow R_F = (-\infty, -1] \cup [1, +\infty)$$

-1	1
+	-

$$2a^2 - 4a + 1 \rightarrow \text{ext} \left| -\frac{1}{2} \rightarrow R_F = \left[-\frac{1}{2}, +\infty\right) \right.$$

(7)
(2)

$$\text{ب) } \sqrt{-a^2 + 4a - 4} \rightarrow -a^2 + 4a - 4 \text{ ext} \left| \begin{array}{l} y = a \\ x = y \end{array} \right. \\ \rightarrow R_F = (-\infty, 4] = R_F [0, 4]$$

$$\text{ج) } \text{Log}(a^2 - 4a + 4a + 1) \rightarrow (-\infty, +\infty) = R_F$$

$$\text{د) } \frac{2a+1}{2a-4} \Rightarrow R_F = R - \left\{ \frac{3}{2} \right\}$$

(2) سوال 15

$$\text{ب) } \sqrt{\frac{f+1}{2-f}} = [0, +\infty) - \left\{ \frac{1}{2} \right\}$$

$$\text{ج) } \frac{a^2 + 2 + 1}{\sqrt{a^2 + 2}} = \frac{a^2 + 2}{\sqrt{a^2 + 2}} + \frac{1}{\sqrt{a^2 + 2}} = \sqrt{a^2 + 2} + \frac{1}{\sqrt{a^2 + 2}}$$

$$\rightarrow \min a \geq 0 \Rightarrow \min \sqrt{2} + \frac{1}{\sqrt{2}} = \frac{3}{\sqrt{2}}$$

$$\rightarrow R_F = \left[\frac{3}{\sqrt{2}}, +\infty \right)$$

$$\text{د) } a^2 + \frac{1}{a^2 + 4} + f - f \rightarrow a^2 + f + \frac{1}{a^2 + 4} - f \rightarrow \min a = 0$$

$$\rightarrow \min \frac{1}{f} \rightarrow R_F = \left[\frac{1}{f}, +\infty \right)$$

$$y = \sqrt{a^2 - 2a^2 + 4a + 1} \rightarrow R = \sqrt{R_1} \\ \rightarrow [0, +\infty)$$

چون منفرد است

7 سوال

سوال 6

$$y_2 \frac{ca^x + t}{a^x - 1} \rightarrow y_2 a^x - y_2 ca^x + t$$

$$(x-y) a^x + (t+y)$$

سوال 6

$$x_2 - b \pm \sqrt{\Delta} \pm \frac{\sqrt{0 - t(y+t)(-y+x)}}{y_2 a}$$

$$y_2(x-y) \rightarrow \neq 0$$

$$\rightarrow f(y, x) / (y, t) > 0 \quad \frac{1}{t} - \frac{1}{t} + y_2 a = \rightarrow f(x, -\infty) \quad u / (x, +\infty)$$

$$y_2 : \max \rightarrow x_2 + \infty \rightarrow y_2 x_2$$

$$\min \rightarrow x_2 \rightarrow 0 \rightarrow y_2 - x_2$$

$$\rightarrow R_F = R - [-t, x_2]$$

$$\frac{y_2 \sin a + t}{\sin a - y_2} \rightarrow \sin a_2 \rightarrow y_2 = -\frac{t}{y_2}$$

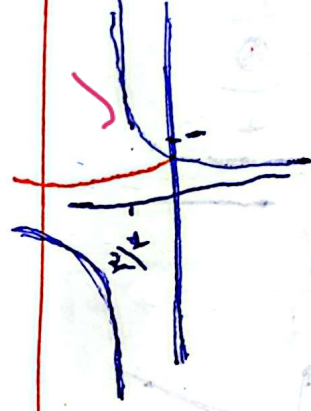
$$\sin a_2 \rightarrow y_2 = \frac{t}{y_2}$$

$$\sin a_2 - 1 \rightarrow y_2 = -\frac{1}{y_2}$$

$$\rightarrow R_F = [-x_2, -\frac{1}{y_2}]$$

$$y = \left| \frac{ca^x - 1}{t} \right|$$

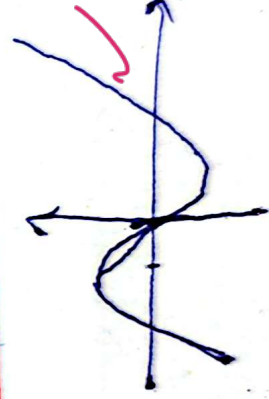
$$R = [0, +\infty)$$



$$b) \sqrt{\frac{a(a-x)}{t(a-x)}} \quad R = [x_2, \frac{1}{y_2}]$$

$$\frac{0}{-a^x - ca^x} \mid a^x - ca^x$$

$$R_F = R$$



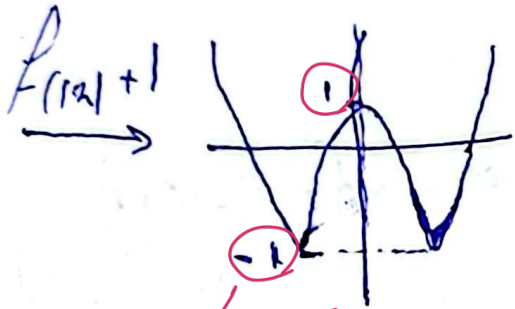
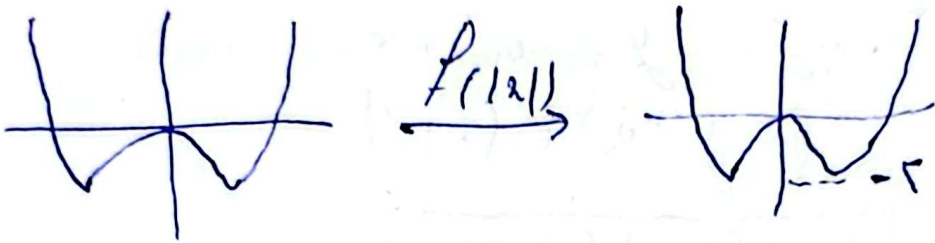
سوال 7

سوال 8

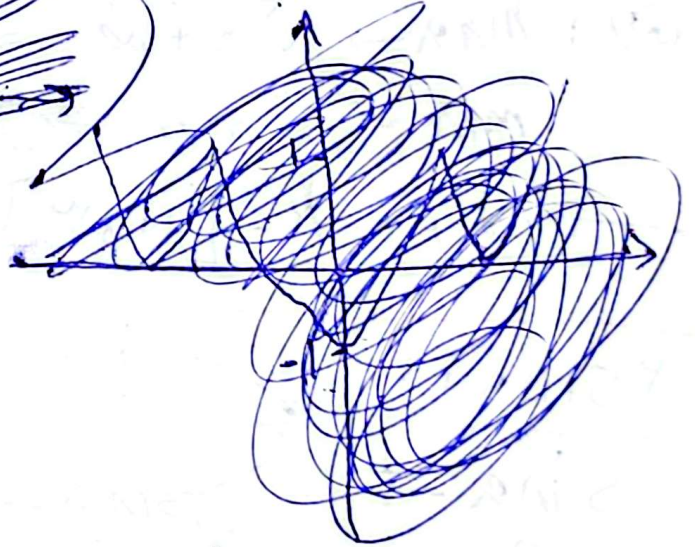
سوال 9

سوال ۱۰

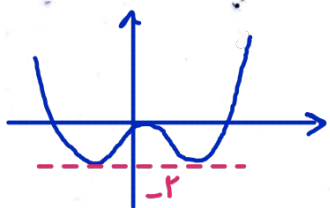
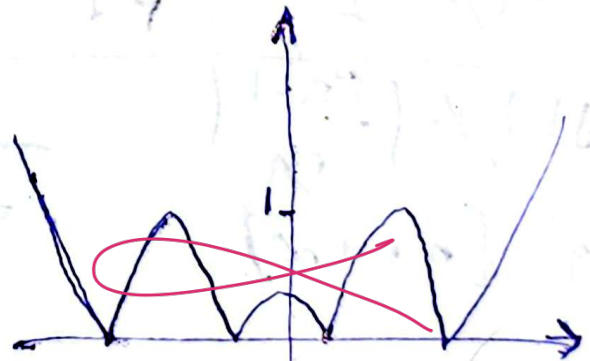
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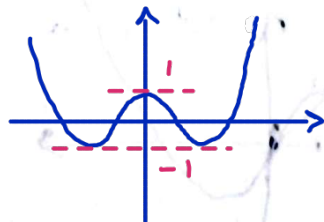
فاصله بالا و پایین محور یمنانه!



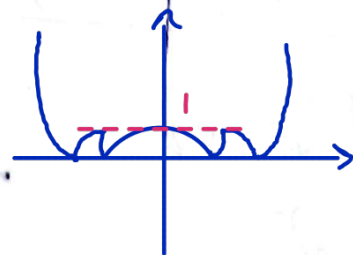
$f(x+1) + 1$



$y = f(x)$



$y = f(x) + 1$



$y = |f(x) + 1|$

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