

تکلیف عدد ۲

پایه دهم ریاضی (نیمه اول)

مسئله ششم

$$y = x^3 - 3x^2 + 2x + 1$$

$$y' = (x-1)^2 + 1$$

$$1 + \sqrt{y+1} = x$$

$$R_y = [1, R]$$

$$y = \frac{1}{x^2 - 2x}$$

$$y(x^2 - 2x) = 1 \quad y(x^2 - 2x) = 1$$

$$(x^2 - 2x) = \frac{1}{y} \quad (+1)$$

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

$$x = \pm \sqrt{\frac{1+y}{y}} + 1$$

$$y = x^2 - 2x + 1$$

$$x_s = \frac{-b}{2a} = \frac{+1}{1} = +1$$

$$y_s = 1 - 2 \cdot 1 + 1 = 0$$

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

$$y = \sqrt{x^2 - 2x + 1}$$

$$x_s = \frac{-b}{2a} = \frac{+1}{1} = +1$$

$$y_s = 1 - 2 \cdot 1 + 1 = 0$$

$$R_y = \sqrt{[-1, +\infty)} = [0, +\infty)$$

$$y = -x^2 + 4x + 10$$

$$x_s = \frac{-b}{2a} = \frac{-4}{-2} = +2$$

$$y_s = -4 + 8 + 10 = 14$$

$$R_y = (-\infty, 14]$$

$$y = \sqrt{4x - x^2}$$

$$x_s = \frac{-b}{2a} = \frac{-4}{-2} = +2$$

$$y_s = 1 \cdot 4 - 4 = 0$$

$$R_y = \sqrt{[0, 4]} = [0, 2]$$

$$y = x^3 - 3x^2 + 2x + 1$$

$$R_y = R$$

$$y = \sqrt{x^3 - 3x^2 + 2x + 1}$$

$$R_y = \sqrt{[1, R]} = [0, +\infty)$$

$$y = x^3 - 3x^2 + 2x + 1$$

$$R_y = R$$

$$y = (x^3 - 3x^2 + 2x + 1)^2$$

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

الف) $y = \frac{2a+1}{a-1}$ $\frac{a}{c} = 1$
 $R_y = R - \{1\}$

ب) $y = \frac{2a+1}{a+1}$ $\frac{a}{c} = 1$
 $R_y = R - \{1\}$

ج) $y = \sqrt{\frac{2a+1}{a+1}}$ $\frac{a}{c} = 1$

د) $y = \sqrt{\frac{2a+1}{1-a}}$ $\frac{a}{c} = \{1\}$

$R_y = \sqrt{R - \{1\}} = [0, +\infty) - \{\sqrt{1}\}$

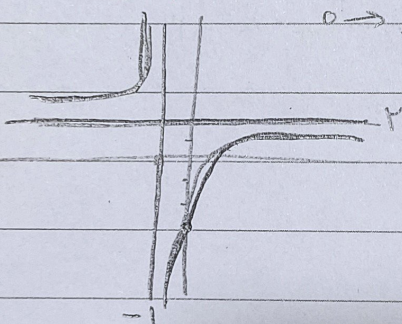
$R_y = \sqrt{R - \{1\}} = [0, +\infty)$

حجاب افق = $\frac{a}{c}$

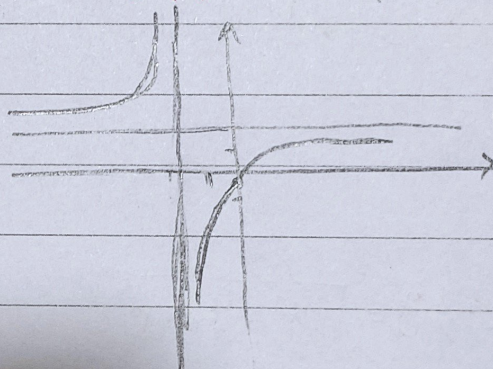
ریشه ج = حجاب عمودی

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

الف) $\frac{2a-1}{a+1}$ $\frac{a}{c} = 1$ $\frac{1}{1+1} = -1$



ب) $\frac{2a-1}{a+2}$ $\frac{a}{c} = 1$ $\frac{1}{2+1} = -\frac{1}{2}$



الف) $y = \sin a + \frac{1}{\sin a}$
 $R_y = (-\infty, -2] \cup [2, +\infty)$

ب) $y = \frac{a^2+1}{a^2} = a^2 + \frac{1}{a^2}$
 $R_y = (-\infty, -2] \cup [2, +\infty)$

ج) $y = \frac{\sqrt{a^2+1}}{\sqrt{a}} = \sqrt{a} + \frac{1}{\sqrt{a}}$
 $R_y = (-\infty, 2] \cup [2, +\infty)$

د) $y = \sqrt{a} + \frac{1}{\sqrt{a}}$
 $R_y = [2, +\infty)$

الف) $y = a^2 + \frac{1}{a^2}$ $\min = 0$
 $\min \rightarrow 1 + \frac{1}{1} = 2$
 $R_y = [2, +\infty)$

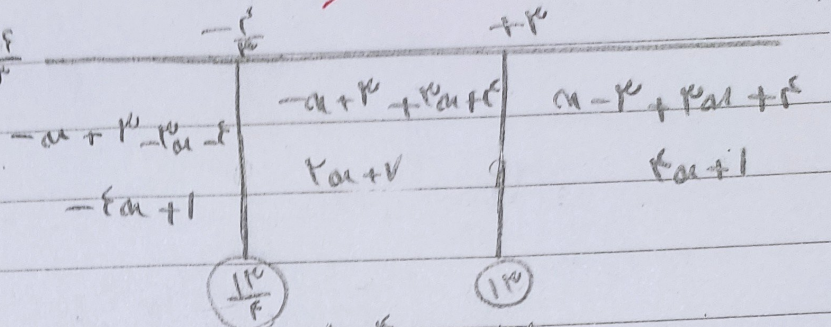
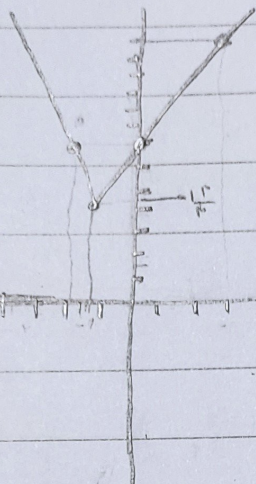
ب) $y = \frac{a^2+a}{\sqrt{a^2+a}} = \sqrt{a^2+a} + \frac{1}{\sqrt{a^2+a}}$ $\min = 0$
 $\min \rightarrow 1 + \frac{1}{1} = 2$
 $R_y = [2, +\infty)$



$$y = |x - 3| + |2x + 1|$$

$$x = 3$$

$$x = -\frac{1}{2}$$



$$x = 3 \rightarrow 1$$

$$x = 3 \rightarrow |0| + |1| = 1$$

$$x = -\frac{1}{2} \rightarrow \left| -\frac{1}{2} - 3 \right| + \left| -1 + \frac{1}{2} \right| = \frac{11}{2}$$

$$-1 \rightarrow 1$$

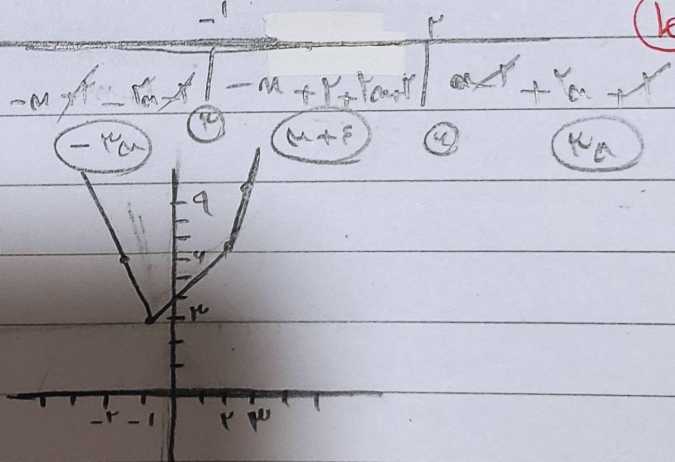
$$0 \rightarrow \left| -\frac{1}{2} \right| + \left| \frac{1}{2} \right| = 1$$

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

$$x = 2 \quad x = -1$$

$$\begin{aligned} -2 &\rightarrow +4 \\ -1 &\rightarrow 1 \\ 2 &\rightarrow 9 \\ +2 &\rightarrow 9 \end{aligned}$$

$$Ry = (+3, +5)$$



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

$$\begin{aligned} -2 &\rightarrow 0 \\ -1 &\rightarrow 1 \\ +1 &\rightarrow -2 \\ +2 &\rightarrow -1 \end{aligned}$$

