

تکلیف عدد ۲

پایه دهم ریاضی (نیمه اول)

مدرس: کندی

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

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

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

$$R_y = [1, \infty)$$

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

$$y_s = 18 - 4 = 14$$

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

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

$$R_y = \mathbb{R}$$

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

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

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

$$R_y = \mathbb{R}$$

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

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

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

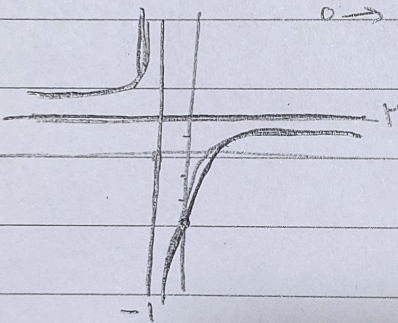
$R_y = \sqrt{R - \{1\}} = [0, \infty) - \{\sqrt{1}\}$

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

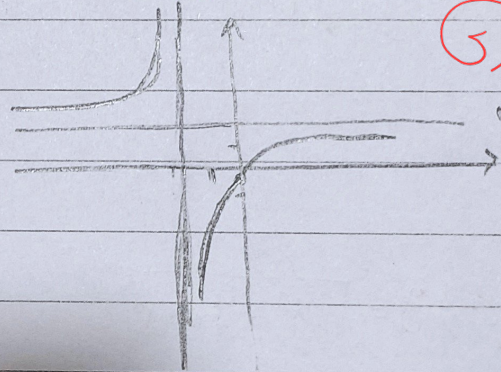
ریشه ج = $\frac{a}{c}$

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الف) $\frac{2a-1}{a+1}$ $\frac{a}{c} = 1$ $\frac{a}{c} = -1$
 $0 \rightarrow \frac{-1}{+1} = -1$



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



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

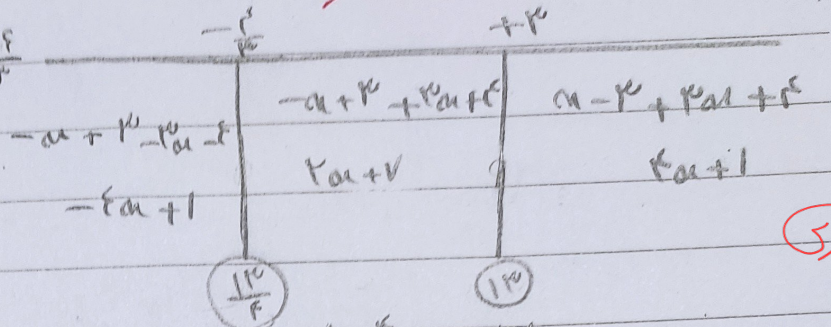
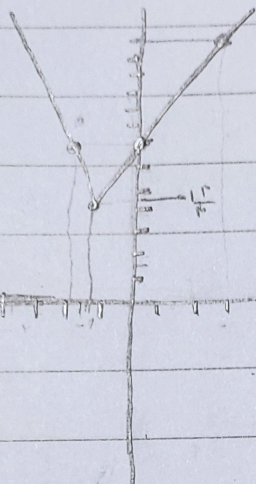
ب) $y = \frac{a^2+a}{\sqrt{a^2+a}} = \sqrt{a^2+a} + \frac{1}{\sqrt{a^2+a}}$ $\min = 0$
 $\min \rightarrow 1 + \frac{1}{1} = 2$
 $R_y = [2, \infty)$



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

$$x=3$$

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



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

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

$$-1 \rightarrow 1$$

$$0 \rightarrow \left|-\frac{1}{2}\right| + \left|1\right| = \frac{3}{2}$$

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

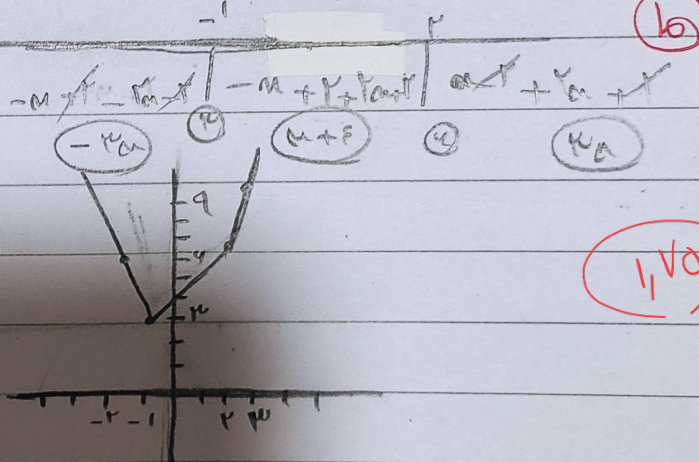
$$x=2 \rightarrow +4$$

$$x=-1 \rightarrow 0$$

$$x \rightarrow 0$$

$$+2 \rightarrow 0$$

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



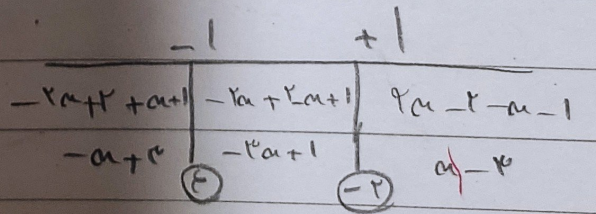
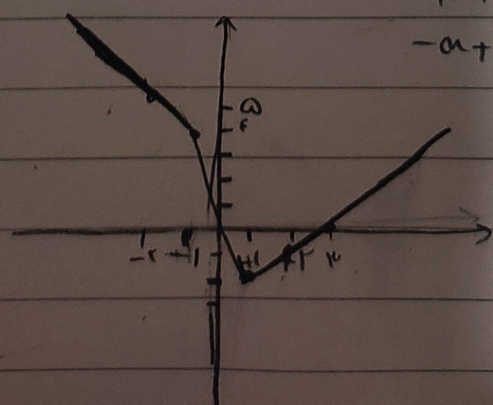
$$y = |2x-2| - |x+1|$$

$$x=1 \rightarrow 0$$

$$x=-1 \rightarrow 0$$

$$+1 \rightarrow -2$$

$$+2 \rightarrow -1$$



$$R = [-1, +\infty)$$

