

Date:

Sub:

٢٥

تکلیف لیان ابراهیم بازدهم

الف) $y = x^3 - 3x^2 + 3x$

٥-١

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

$$x-1 = \sqrt[3]{y-1} \Rightarrow x = \sqrt[3]{y-1} + 1$$

$$R = \mathbb{R}$$

ب) $y = \frac{1}{x^2 - 2x}$

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

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

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

$$R = (-\infty, -1] \cup (0, +\infty)$$

الف) $y = x^2 - 2x + 1$

ب) $y = -x^2 + 4x + 3$

٦-١

$$\min \begin{cases} x = -\frac{b}{2a} = \frac{2}{2} = 1 \\ \varepsilon - 1 + 1 = y \end{cases}$$

$$\max \begin{cases} x = -\frac{b}{2a} = -\frac{4}{-2} = 2 \\ -9 + 12 + 3 = 12 \end{cases}$$

$$R = [4, +\infty)$$

$$R = (-\infty, 12]$$

ج) $y = \sqrt{x^2 - 2x - 3}$

د) $y = \sqrt{4x - x^2}$

$$\min \begin{cases} x = -\frac{b}{2a} = \frac{2}{2} = 1 \\ \varepsilon - 1 - 3 = -4 \end{cases}$$

$$\max \begin{cases} -\frac{b}{2a} = -\frac{4}{-1} = 4 \\ 12 - 4 = 8 \end{cases}$$

$$R = \sqrt{[-4, +\infty)} = [0, +\infty)$$

$$R = \sqrt{(-\infty, 4]} = [0, 4]$$

Date:

Sub:

الف) $y = x^3 - 3x^2 + 4x + 1$ $R = \mathbb{R}$

ب) $y = x^3 - 4x^2 + 3x + 2$ $R = \mathbb{R}$

ج) $y = \sqrt{x^3 - 4x^2 + 3x + 1}$ $R = [0, +\infty)$

د) $y = (x^3 - 3x^2 + 4x + 1)^2$ $R = [0, +\infty)$

سؤال ٤ مقعدى بصرى

الف) $y = \sqrt{\frac{2x+2}{x+1}}$

هذه الجرافيك

ب) $y = \sqrt{\frac{2x+1}{2-x}}$

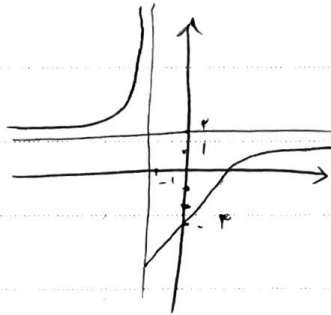
$R = \sqrt{R - \{1\}} \rightarrow [0, +\infty) - \{\sqrt{2}\}$ $R = \sqrt{R - \{2\}} \rightarrow [0, +\infty)$

الف) $y = \frac{2x-2}{x+1}$

$x+1=0 \rightarrow x=-1$

$\frac{a}{c} = \frac{2}{1} = 2$

$x=0 \rightarrow y=-2$

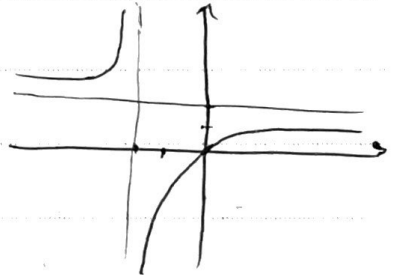


ب) $y = \frac{2x-1}{x+2}$

$x+2=0 \rightarrow x=-2$

$\frac{a}{c} = \frac{2}{1} = 2$

$x=0 \rightarrow y=-\frac{1}{2}$



الف) $y = \sin x + \frac{1}{\sin x}$ $R = (-\infty, -1] \cup [1, +\infty)$

ب) $y = \frac{x^4+1}{x^2} \rightarrow x^2 + \frac{1}{x^2}$ $R = (-\infty, -1] \cup [1, +\infty)$

ج) $y = \frac{\sqrt[4]{x^4+1}}{\sqrt[4]{x^2}} = \sqrt[4]{x^2} + \frac{1}{\sqrt[4]{x^2}}$ $R = (-\infty, -1] \cup [1, +\infty)$

د) $y = \sqrt{x} + \frac{1}{\sqrt{x}}$ $R = [1, +\infty)$

Date:

Sub:

$$\text{الف) } y = |x-2| + |2x+2|$$

$$\begin{array}{c|c|c} & x=2 & x=-1 \\ \hline -x+2-2x-2 & -x+2+2x+2 & x-2+2x+2 \\ \hline -3x & x+4 & 3x \end{array}$$

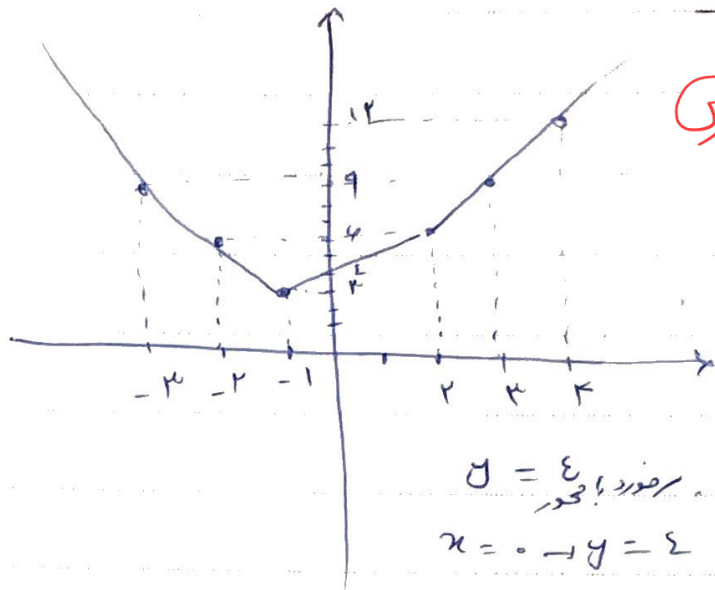
$$-2 \rightarrow -3x \rightarrow +y$$

$$-2 \rightarrow -3x \rightarrow 4$$

$$2 \rightarrow 3x \rightarrow 4$$

$$4 \rightarrow 3x \rightarrow 12$$

$$R = [2, +\infty)$$



$$\text{ب) } y = |2x-2| - |x+1|$$

$$\begin{array}{c|c|c} & x=1 & x=-1 \\ \hline 2x-2-x-1 & 2x-2-x-1 & 2x-2-x-1 \\ \hline x-3 & x-3 & x-3 \end{array}$$

$$-2 \rightarrow -x+2 \rightarrow 2$$

$$-2 \rightarrow -x+2 \rightarrow 1$$

$$R = [-2, +\infty)$$

