نام و نام خانوادگی: تانیا ترک ترابی — سری: ۹ — گروه: دهم یکشنبه

الف) $y=x^2-5 \Rightarrow y+5=x^2 \Rightarrow x=\sqrt{y+5} \Rightarrow R_f=[5,+\infty)$

ب) $y=x^3+1 \Rightarrow y-1=x^3 \Rightarrow x=\sqrt[3]{y-1} \Rightarrow R_f=\mathbb{R}$ ۱

الف) $y=x^2-4x+\underbrace{6}_{4+2} \Rightarrow y=(x-2)^2+2 \Rightarrow y-2=(x-2)^2 \Rightarrow x=\pm\sqrt{y-2}+2 \Rightarrow R_f=[2,+\infty)$

ب) $y=x^2-5x+1 \qquad (\frac{b}{2})^2=(\frac{-5}{2})^2=\frac{25}{4} \Rightarrow y=(x^2-5x+\frac{25}{4})-\frac{25}{4}+1 \Rightarrow$ ۲

$y=(x-\frac{5}{2})^2-\frac{21}{4} \Rightarrow \pm\sqrt{y+\frac{21}{4}}+\frac{5}{2}=x \Rightarrow R_f=[-\frac{21}{4},+\infty)$

الف) $y=\frac{x^2+3}{x^2-2} \Rightarrow yx^2-2y=x^2+3 \Rightarrow yx^2-x^2=2y+3 \Rightarrow x^2(y-1)=2y+3 \Rightarrow$

$x^2=\frac{2y+3}{y-1} \Rightarrow x=\pm\sqrt{\frac{2y+3}{y-1}} \Rightarrow y\neq 1,\ \frac{2y+3}{y-1}\geq 0$ ۳

$-\frac{3}{2}$, 1: $+ \mid - \mid +$

$R_f=(-\infty,-\frac{3}{2}]\cup(1,+\infty)$

ب) $y=\frac{2|x|+1}{|x|-4} \Rightarrow y|x|-4y=2|x|+1 \Rightarrow y|x|-2|x|=4y+1 \Rightarrow |x|(y-2)=4y+1 \Rightarrow$

$|x|=\frac{4y+1}{y-2} \Rightarrow y\neq 2,\ \frac{4y+1}{y-2}\geq 0 \qquad R_f=(-\infty,\frac{1}{4}]\cup(2,+\infty)$

$-\frac{1}{4}$, 2: $+ \mid - \mid +$

$y=\frac{1}{x^2-4x} \Rightarrow m=x^2-4x,\ y=\frac{1}{m}$ — راس $x=\frac{-4}{2(1)}=2$ — $m_{min}=(2)^2-4(2)=-4$

برد m: $m\in[-4,0)\cup(0,+\infty)$ — $m\in(0,+\infty)$ — $m\in[-4,0) \Rightarrow y=\frac{1}{-4} \Leftarrow m=-4$ ۴

$m\to 0 \Rightarrow y=\frac{1}{0} \Rightarrow$ تعریف نشده

$R_f: (-\infty,-\frac{1}{4}]\cup(0,+\infty)$

الف) $y=x^2-6x+2$ — min $\left|\begin{array}{l}\frac{-b}{2a}=3\\ -7\end{array}\right.$ — $R_f=[-7,+\infty)$ ۵

ب) $y=-x^2+4x+2$ — max $\left|\begin{array}{l}\frac{-b}{2a}=2\\ 6\end{array}\right.$ — $R_f=(-\infty,6]$

۶

الف) $y = \sqrt{x^2 - 6x + 2}$ $\quad \min \left| \begin{matrix} \frac{-b}{2a} = 3 \\ -7 \end{matrix} \right.$ $\quad R_f = \sqrt{[-7, +\infty)} \Rightarrow R_f = [0, +\infty)$

ب) $y = \sqrt{-x^2 + 4x + 10}$ $\quad \max \left| \begin{matrix} \frac{-b}{2a} = 2 \\ 14 \end{matrix} \right.$ $\quad R_f = \sqrt{(-\infty, 14]} = R_f = [0, \sqrt{14}]$

۷

الف) $y = x^7 + 3x^4 + 2x + 1$ $\quad R_f = \mathbb{R}$

ب) $y = \sqrt{x^6 + 4x^2 + 6x + 1}$ $\quad R_f = [0, +\infty)$

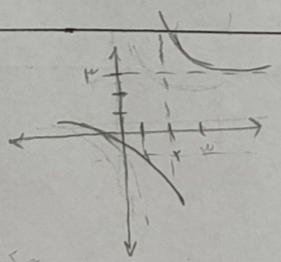
۸

الف) $y = \frac{3x + 1}{x - 2}$ $\quad R_f = \mathbb{R} - \{3\}$

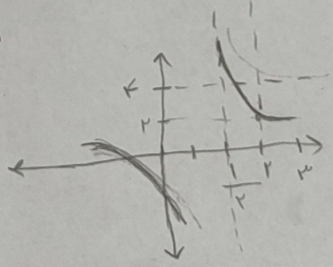
ب) $y = \sqrt{\frac{4x + 1}{x + 2}}$ $\quad R_f = \mathbb{R} - \{\sqrt{4}\} \Rightarrow R_f = \mathbb{R} - \{2\}$

۹

الف) $y = \frac{3x + 1}{x - 2}$ $\quad x = 2 \rightarrow$ ریشه مخرج
$y = \frac{a}{c} = 3$



ب) $y = \frac{4x - 2}{1 - 2x}$ $\quad x = \frac{1}{2}$
$y = -2$



۱۰

الف) $\cos^2 x + \frac{1}{\cos^2 x} \Rightarrow \cos^2 x > 0$ ✓ $\Rightarrow x + \frac{1}{x} \Rightarrow x > 0 \Rightarrow R_f = [2, +\infty)$

ب) $y = \sqrt[3]{\frac{x^2 + 1}{x}} \Rightarrow y = \sqrt[3]{\frac{x^2}{x} + \frac{1}{x}} \Rightarrow y = \sqrt[3]{x + \frac{1}{x}} \Rightarrow x \geq 0$ یا $x < 0$ $\quad R_f = (-\infty, -\sqrt[3]{2}] \cup [\sqrt[3]{2}, +\infty)$