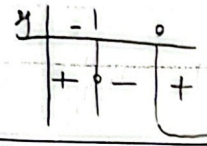


11,5

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره 4 کلاس 11A

الف) $y = (x-1)^3 + 1 \rightarrow (x-1)^3 = y-1$ و $x-1 = \sqrt[3]{y-1} \rightarrow x = \sqrt[3]{y-1} + 1$, $R_f = \mathbb{R}$

ب) $yx^2 - 4x - y = 1 \rightarrow yx^2 - 4x - y - 1 = 0$ و $\Delta = 16y^2 + 4y \geq 0 \rightarrow 4y(y+1) \geq 0 \Rightarrow y = 0, -1$



صورت کسر 1 است
در نتیجه همیشه
مثبتی دهه

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

الف) $x = \frac{y}{y+1} = \frac{4}{5} = 0.8$ و $y = 4 - 1 + 1 = 4 \Rightarrow R_f = [4, +\infty)$

ب) $x = \frac{y}{y+1} = 3$ و $y = -9 + 1 + 3 = -5 \Rightarrow R_f = (-\infty, 12]$

ج) $x = \frac{y}{y+1} = 2$ و $y = 4 - 1 - 3 = -4 \Rightarrow R_f = \sqrt{[-4, +\infty)} = [0, +\infty)$

د) $x = \frac{y}{y+1} = 3$ و $y = 9 \Rightarrow R_f = \sqrt{(-\infty, 9]} = [0, 3]$

الف) $R_f = \mathbb{R}$ ب) $R_f = \mathbb{R}$

ج) $x^2 - 4x^2 + 5x + 1 \geq 0 \Rightarrow R_f = [0, +\infty)$

د) $R_f = [0, +\infty)$ — همدارند توان 2 بیدار پس همدارند
مثبت است

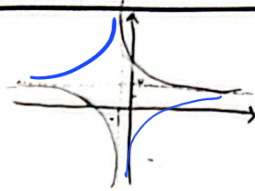
الف) $y = \frac{3x+1}{x-2}$, $-4 \neq 1 \Rightarrow R_f = \mathbb{R} - \{3\}$

ب) $y = \frac{2x+1}{x+1}$, $2 \neq 1 \Rightarrow R_f = \mathbb{R} - \{2\}$

الف) $y = \sqrt{\frac{2x+4}{x+1}}$, $\frac{2x+4}{x+1} \geq 0 \Rightarrow R_f = [0, +\infty) - \{\sqrt{2}\}$

ب) $y = \sqrt{\frac{3x-1}{-x+2}}$, $\frac{3x-1}{-x+2} \geq 0 \Rightarrow R_f = [0, +\infty)$

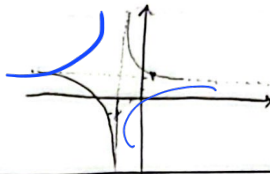
الف) $y = 2$: جانب اعلى و $x = -1$: جانب يمين



✓

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ب) $y = 2$: جانب اعلى و $x = -2$: جانب يمين



الف) $R_f = (-\infty, -2] \cup [2, +\infty)$

ب) $y = x^3 + \frac{1}{x^3} \rightarrow R_f = (-\infty, -2] \cup [2, +\infty)$

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

د) $\sqrt{x} + \frac{1}{\sqrt{x}} \rightarrow R_f = [2, +\infty)$

الف) $x^3 = k \rightarrow k + \frac{1}{k+3} \rightarrow \frac{k(k+3)+1}{k+3} = \frac{k^2+3k+1}{k+3} = y \rightarrow yk+3y = k^2+3k+1 \rightarrow k^2+3k+1-yk-3y=0$
 $k^2 + k(3-y) + 1-3y = 0 \quad \Delta = (3-y)^2 - 4(1-3y) = y^2 + 4y + 5 = (y+1)(y+5) = 0 \quad y = -1, -5$

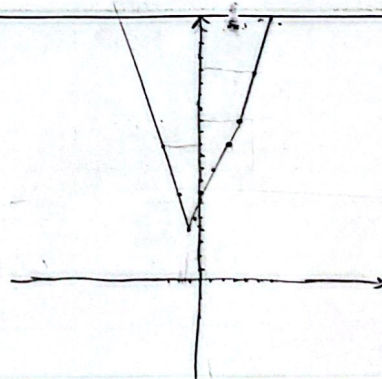
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$\frac{y}{+} \frac{-5}{+} \frac{-1}{+} \rightarrow R_f = (-\infty, -5] \cup [-1, +\infty)$

ب) $y = \sqrt{x^2+4} + \frac{1}{\sqrt{x^2+4}}$, $\sqrt{x^2+4}$: كثرين عدد $\sqrt{4} = 2$, $2 + \frac{1}{2} = \frac{5}{2}$ $R_f = [\frac{5}{2}, +\infty)$

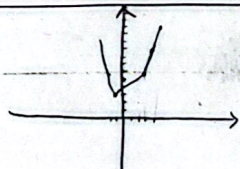
$$f(x) = \begin{cases} x-3+3x+4 = 4x+1 & x > 3 \\ 3-x+3x+4 = 2x+7 & -\frac{4}{3} \leq x \leq 3 \\ 3-x-3x-4 = -4x-1 & x < -\frac{4}{3} \end{cases}$$



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

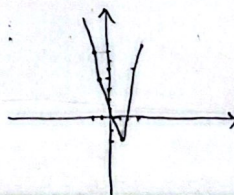


$R_f = [3, +\infty)$

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ب) $\begin{array}{c|c|c} -1 & 1 & \\ \hline -3x+1 & -x+3 & 3x-1 \end{array}$



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

$$x^{\frac{1}{2}} + \frac{1}{x^{\frac{1}{2}}} \rightarrow \frac{1}{x^{\frac{1}{2}}} \quad R = [\frac{1}{2}, +\infty)$$

الف 8