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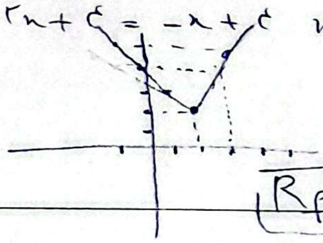
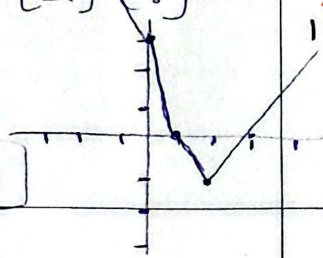
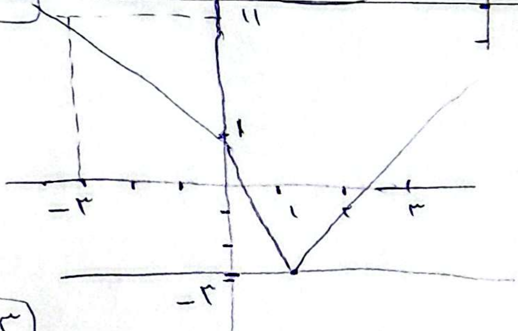
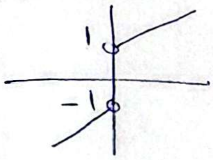
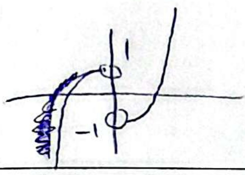
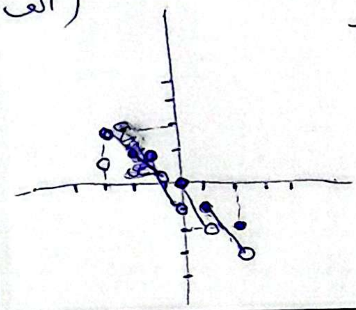
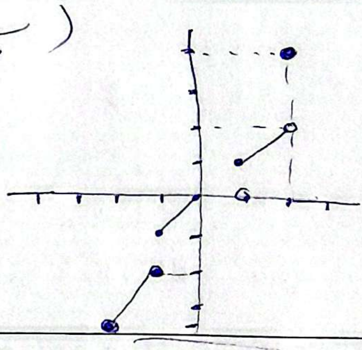
نام و نام خانوادگی ...[illegible]... پاسخنامه تشریحی تکلیف شماره ...۷... کلاس ...[illegible]...

۱	الف) $y = x + \lvert 2x - 4 \rvert$ $\begin{cases} x + 2x - 4 = 3x - 4 & x \geq 2 \\ x - 2x + 4 = -x + 4 & x \leq 2 \end{cases}$  $R_f = [2, +\infty)$ ب) $y = \lvert x-2 \rvert + \lvert x-1 \rvert - \lvert x \rvert$ نقاط: $\begin{bmatrix}0\\3\end{bmatrix} \begin{bmatrix}1\\0\end{bmatrix} \begin{bmatrix}2\\-1\end{bmatrix} \begin{bmatrix}3\\0\end{bmatrix}$  $R_f = [-1, +\infty)$	۴
۲	$\begin{cases} 2x - 5 & x \geq 1 \\ -4x + 1 & -2 \leq x < 1 \\ -2x + 5 & x < -2 \end{cases}$  $K = -3$	۴
۳	الف) $\begin{cases} x + 1 & x > 0 \\ x - 1 & x < 0 \end{cases}$  ب) $\begin{cases} x^2 - 1 & x > 0 \\ -x^2 + 1 & x < 0 \end{cases}$ 	۴
۴	الف)  $-2 \leq x < -1 \to -2x - 2$ $-1 \leq x < 0 \to -2x - 1$ $0 \leq x < 1 \to -2x$ $1 \leq x < 2 \to -2x + 1$ $x = 2 \to 2, -2$ ب)  $-2 \leq x < -1 \to -2\lvert x \rvert$ $-1 \leq x < 0 \to -\lvert x \rvert$ $0 \leq x < 1 \to 0$ $1 \leq x < 2 \to \lvert x \rvert$ $x = 2 \to 2, 4$	۴
۵	الف) $y = 2x - [2x]$ $\quad 0 \leq \bigcirc - [\bigcirc] < 1$ $\quad R_f = [0, 1)$ ب) $y = 4(x - [x])$ $\quad R_f = [0, 4]$ ج) $y = x - 5\left[\frac{x}{5}\right]$ $\quad y = 5\left(\frac{x}{5} - \left[\frac{x}{5}\right]\right)$ $\quad R_f = [0, 5)$ د) $y = -(2x - [2x])$ $\quad R_f = (-1, 0]$	۴

سؤال ۶ ج) $y=\sqrt{2\cos x - 2\sin x}$ $\quad -\sqrt{5} \leq -2\sin x + \cos x \leq \sqrt{5}$

$\xrightarrow{\sqrt{\ }} \quad 0 \leq \sqrt{-2\sin x + \cos x} \leq \sqrt[4]{5} \quad R_f = [0, \sqrt[4]{5}]$

عارض مشترک الحل

الف) $-\sqrt{3^2+2^2} \leq 3\sin x + 2\cos x \leq \sqrt{3^2+2^2}$ $-\sqrt{13} \leq 3\sin x + 2\cos x \leq \sqrt{13} \quad R_f = [-\sqrt{13}, \sqrt{13}]$ ب) $-\sqrt{25} \leq 4\sin x - 3\cos x \leq \sqrt{25}$, -5, 5 $\quad R_f = [-5, 5]$ ج) $-\sqrt{29} \leq 2\sin x + 5\cos x \leq \sqrt{29}$ $[2\sin x + 5\cos x] = \{-6, -5, \ldots, 5\}$ $\quad R_f = \{-6, -5, -4, \ldots, 5\}$	۶
الف) $y=\sin^2 x + 3\sin x + 2$ $\sin x = \frac{-b}{2a} = \frac{-3}{2}$ $\quad f(-\frac{3}{2}) = -\frac{1}{4}$ min ✗ $\sin x = 1 \quad y = 6$ $\sin x = -1 \quad y = 0 \quad R_f = [0, 6]$ ب) $y = 2\sin^2 x + 3\sin x + 2$ $\sin x = \frac{-b}{2a} = \frac{-3}{4}$ $\quad f(-\frac{3}{4}) = \frac{14}{16} = \frac{7}{8}$ $\quad \sin x = 1 \ y = 7$, $\sin x = -1 \ y = 1$	۷
الف) $y = \sin^2 x + 4\cos^2 x$ $\quad R_f = [\frac{7}{8}, 7]$ $y = 1 + 3\cos^2 x \rightarrow R_f = [1, 4]$, $[0, 3]$ ب) $y = \frac{2\cot x}{\frac{1}{\sin^2 x}}$ $\quad 2\cot x \times \sin^2 x = 2\sin x\cos x = \sin 2x$ $-1 \leq \sin x \leq 1 \rightarrow R_f = [-1, 1]$	۸
الف) $y = \sin^4 x + \cos^4 x$ $\frac{1}{2} \leq \sin^4 x + \cos^4 x \leq 1 \quad R_f = [\frac{1}{2}, 1]$ ب) $y = [\sin^8 x + \cos^8 x]$ $2^{1-4} = 2^{-3} \leq \sin^8 x + \cos^8 x \leq 1 \quad (\frac{1}{2})^3 \leq \sin^8 x + \cos^8 x \leq 1$, $\frac{1}{8}$ $[\sin^8 x + \cos^8 x] = \{0, 1\} \Rightarrow R_f = \{0, 1\}$	۹
الف) $y = \frac{(2x-1)(x+4)}{(x+4)}$ $\quad y = 2x - 1 \quad 2x = y + 1 \quad x = \frac{y+1}{2}$ $x \neq -4 \rightarrow \ \neq 0 \rightarrow y \neq -9 \quad R_f = \mathbb{R} - \{-9\}$ ب) $y = \frac{(x-1)(x^2+x+1)}{(x-1)}$ $\quad y = x^2 + x + 1$, $x_{min} = \frac{-b}{2a} = \frac{-1}{2}$, $y_{min} = \frac{3}{4}$	۱۰

$R_f = [\frac{3}{4}, +\infty)$

CamScanner