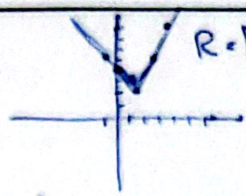
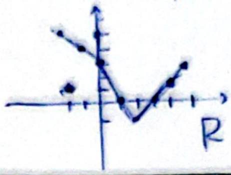
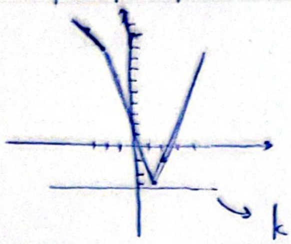
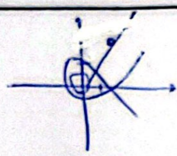
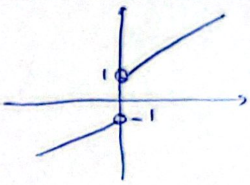
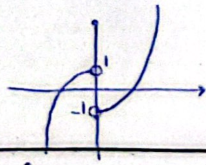
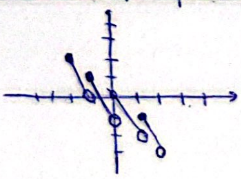
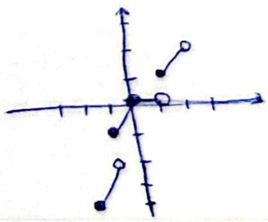
نام و نام خانوادگی .... پاسخنامه تشریحی تکلیف شماره ..۷.. کلاس ....

۱	الف) $y = x + \lvert 2x-4 \rvert$ $R = [2, +\infty)$  ب) $y = \lvert x-2 \rvert + \lvert x-1 \rvert - \lvert x \rvert$ $R = [-1, +\infty)$ 
۲	$(-3, 11)$ $(-2, 9)$ $(1, -3)$ $(2, -1)$  $k = -3$ یک جواب دارد
۳	الف) $f(x) = x + \frac{x}{\lvert x \rvert}$   ب) $f(x) = x\lvert x \rvert - \frac{x}{\lvert x \rvert}$ 
۴	الف) $y = [x] - 2x$ → $[-2,-1) \to -2-2x$ $[-1,0) \to -1-2x$ $[0,1) \to -2x$  ب) $y = [x]\lvert x \rvert$ $[-2,-1) \to 2x$ $[1,2) \to x$ $[-1,0) \to x$ $[0,1) \to 0$ 
۵	الف) $0 \le 3x - [3x] < 1 \to R = [0,1)$ ب) $0 \le x - [x] < 1 \to 0 \le 4x - 4[x] < 4$ $R = [0,4)$ ج) $0 \le \frac{x}{5} - [\frac{x}{5}] < 1 \to 0 \le x - 5[\frac{x}{5}] < 5$ $R = [0,5)$ د) $-1 < [2x] - 2x \le 0$ $R = (-1, 0]$ $\to 0 \le 2x - [2x] < 1 \to -1 < [2x] - 2x \le 0$

الف) $-\sqrt{13} \le 2\sin x + 3\cos x \le \sqrt{13}$ $\quad R_f = [-\sqrt{13}, \sqrt{13}]$

ب) $-\sqrt{25} \le 4\sin x - 3\cos x \le \sqrt{25}$ $\quad R_f = [-5, 5]$

ج) $-\sqrt{29} \le 2\sin x + 5\cos x \le \sqrt{29} \to R = \{-6, -5, -4, \dots, 4, 5\}$

د) $y = -\sqrt{5} \le \cos x + 2\sin x \le \sqrt{5}$ $\quad \sqrt{[0, \sqrt{5}]} \to R_f = [0, \sqrt[4]{5}]$

۸

الف) $y = (1-\cos^2 x) + 4\cos^2 x = 1 + 3\cos^2 x$ $\quad 0 \le \cos^2 x \le 1$

$y = 1 + 3\cos^2 x$ $\xrightarrow{0} 1 + 3(0) = 1$ ، $\xrightarrow{1} 1 + 3(1) = 4$ $\quad [1, 4] = R_f$

ب) $1 + \cot^2 x = \csc^2 x$ $\quad y = \frac{2\cot x}{1+\cot^2 x} = \frac{2\cot x}{\csc^2 x} \to y = 2\cot x \times \sin^2 x$

$y = 2 \times \frac{\cos x}{\sin x} \times \sin^2 x = 2\sin x \times \cos x = \sin 2x$

$R_f = [-1, 1]$

۷

الف) $y = \sin^2 x + 3\sin x + 2$ $\xrightarrow{1} 1+3+2 = 6$ ، $\xrightarrow{-1} 1-3+2 = 0$ ، $-\frac{3}{2} = -\frac{b}{2a} \to \alpha$ غ ق ق ← منفی‌تر از ۱- باشد

$R_f = [0, 6]$

ب) $2\sin^2 x + 3\sin x + 2$ $\xrightarrow{1} 2+3+2 = 7$ ، $\xrightarrow{-1} -3+2+2 = 1$ ، $-\frac{b}{2a} = -\frac{3}{4} \to \frac{7}{8}$ $\longrightarrow R_f = [\frac{7}{8}, 7]$

۱۰

الف) $y = \frac{(2x-1)(x+4)}{(x+4)}$ $\quad x \neq -4$ $\quad 2x-1 \xrightarrow{} -9 \to R_f = R - \{-9\}$

ب) $\frac{(x-1)(x^2+x+1)}{(x-1)} = x^2 + x + 1$ $\quad (x^2+x+1 = (x+1)^2 - x)$ $\quad \frac{4-1}{4}$ $\quad R_f = [\frac{3}{4}, +\infty) - \{3\}$

۹

الف) $2^2 \le \sin^{2\times 3} + \cos^{2\times 3} \le 1 \to R_f = [\frac{1}{4}, 1]$

ب) $\frac{1}{8} \le \sin^8 x + \cos^8 x \le 1 \to [\sin^8 + \cos^8] \in \{0, 1\} = R_f$