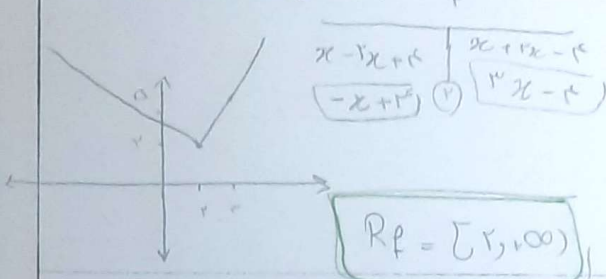


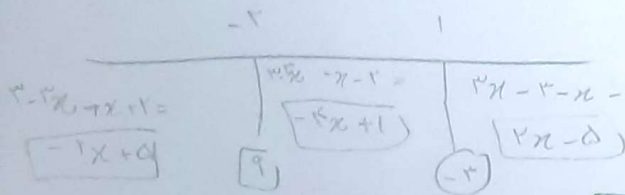
بسم رب الذي خلق المهدى

نام و نام خانوادگی: سید علی زاده
پاسخنامه تشریحی تکلیف شماره ۷ کلاس: یازدهم دبیرستان

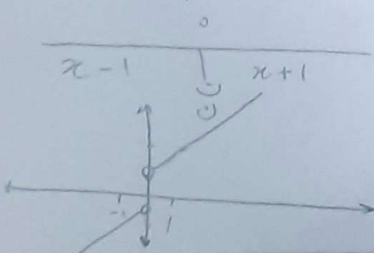
الف) $y = x + |2x - 4|$



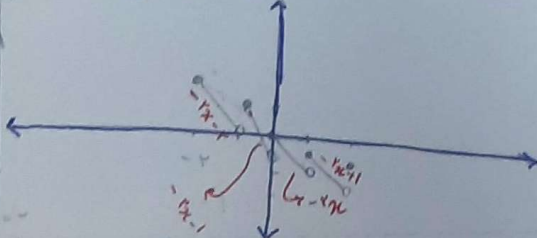
$$|2x - 4| - |x + 2| = k$$



ب) $y = x + \frac{x}{|x|}$



الف) $y = [x] - 2x$

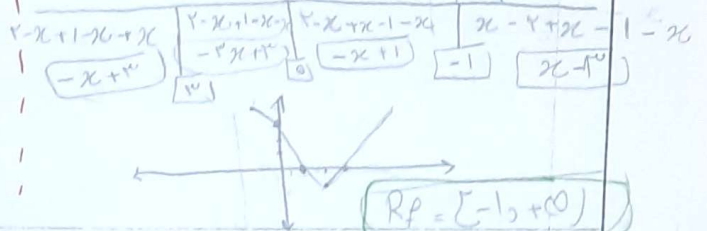


الف) $2x - [2x] \rightarrow x \in \mathbb{Z} \Rightarrow \{0\}$
 $\rightarrow x \notin \mathbb{Z} \Rightarrow [0, 1)$

ب) $f(x - [x]) = R_f = [0, 1)$
 ج) $x - 5[\frac{x}{5}] \rightarrow x = 5k \rightarrow 5k - 5k = 0$
 $\rightarrow x + 5k \rightarrow [0, 5)$

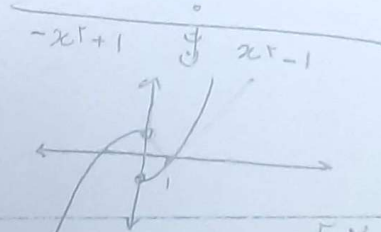
د) $[2x] - 2x \rightarrow [m] - m \rightarrow R_f = [-1, 0)$

ب) $y = |2x - 2| + |x - 1| - |2x|$



$k = -3$

ب) $x|x| - \frac{x}{|x|}$



الف) $y = [x]|x|$
 $[2, 0) \rightarrow -2|x| = -2x$
 $[-1, 0) \rightarrow -1|x| = -x$
 $[0, 1) \rightarrow 0$
 $[1, 2) \rightarrow x$
 $2 \rightarrow x$



$$\rightarrow [-\sqrt{a^2+b^2}, \sqrt{a^2+b^2}]$$

الف) $y = 3\sin x + 4\cos x \rightarrow [-\sqrt{13}, \sqrt{13}] = R_f$

ب) $y = 4\sin x - 3\cos x \rightarrow [-5, 5] = R_f$

ج) $y = [2\sin x + 5\cos x] \rightarrow R_f = \{-5, -4, \dots, 5\}$
 $[-\sqrt{29}, \sqrt{29}]$

د) $y = \sqrt{\cos x - 2\sin x} \rightarrow R_f = [0, \sqrt{5}]$
 $[-\sqrt{5}, \sqrt{5}]$

الف) $y = \sin^2 x + 3\sin x + 2$
 $\sin x \begin{cases} 1 \rightarrow 1+3+2=6 \\ -1 \rightarrow -1+3+2=4 \\ \frac{-b}{2a} = \frac{-3}{2} \times \end{cases}$

$R_f = [4, 6]$

ب) $y = 2\sin^2 x + 3\sin x + 2$

(1) $2+3+2=7$
 $\sin x \begin{cases} (1) \rightarrow 2+3+2=7 \\ (-1) \rightarrow 2-3+2=1 \end{cases}$
 $(\frac{-3}{2}) \rightarrow \frac{9}{4} - \frac{11}{4} + \frac{14}{4} = \frac{11}{4}$

$R_f = [\frac{11}{4}, 7]$

الف) $y = \sin^2 x + 4\cos^2 x$

$\sin^2 x + 4(1 - \sin^2 x)$
 $-3\sin^2 x + 4$

$0 \leq \sin^2 x \leq 1 \rightarrow -3 \leq -3\sin^2 x \leq 0$

$1 \leq 3\sin^2 x + 4 \leq 4 \Rightarrow R_f = [1, 4]$

ب) $y = \frac{2\cos^2 x}{\sin x}$
 $\frac{1}{\sin x}$

$2\sin x \cos x = \sin 2x \Rightarrow$

$R_f = [-1, 1]$

الف) $y = \sin^2 x + \cos^2 x$
 $x=0$

$2^{-2} < y < 1 \Rightarrow R_f = [\frac{1}{4}, 1]$

ب) $y = [\sin^2 x + \cos^2 x]$
 $x=0$

$2^{-2} < y < 1 \Rightarrow R_f = [\frac{1}{4}, 1]$

د) $R_f = \{0, 1\}$

الف) $y = \frac{x^2 + 7x - 4}{x + 5}$

$x^2 + 7x - 4 \rightarrow (x + \frac{7}{2})(x - 1)$

$\frac{(x + \frac{7}{2})(x - 1)}{(x + 5)} \Rightarrow 2x - 1 \Rightarrow R_f = [1, 2]$

$(x + \frac{7}{2}) \rightarrow [-9]$

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

$x^2 + x + 1 \rightarrow R = [-\frac{1}{4}, \infty) \rightarrow [\frac{3}{4}, \infty)$

أما $x=1 \rightarrow 1+1+1=3$

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

$R_f = R - \{9\}$