

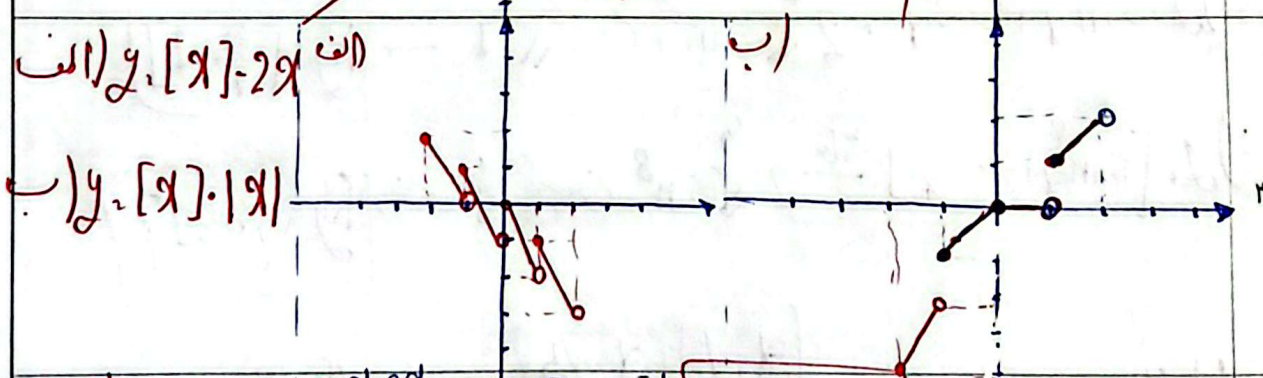
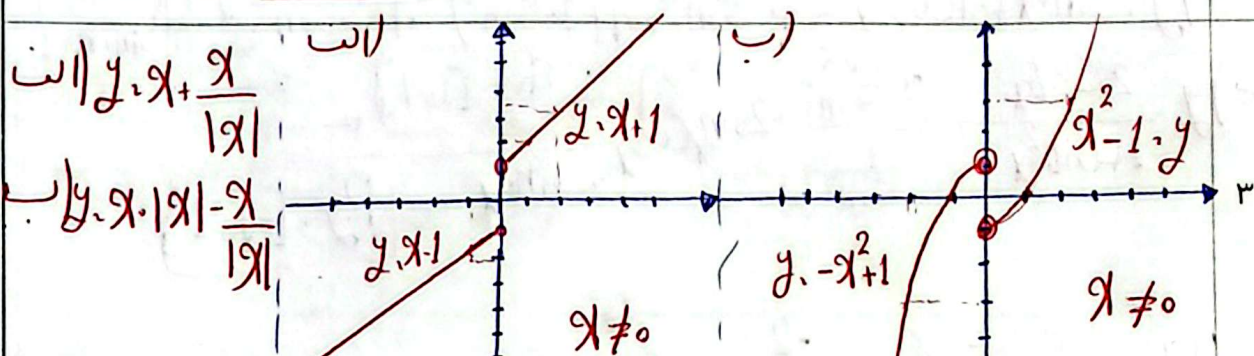
نام و نام خانوادگی: محمد مهدی جباری ... پاسخنامه تشریحی تکلیف شماره 7 ... کلاس: یازدهم ...

الف) $y, x, |2x-4| \xrightarrow{\text{ضابطه}} \begin{array}{c|c} x < 2 & x \geq 2 \\ 4-x & 3x-4 \end{array} \xrightarrow{\text{مینیمم}} \frac{x+2}{2} \cdot 2 \rightarrow R_y = [2, +\infty)$

ب) $y, |x-2| + |x-1| - |x| \xrightarrow{\text{ضابطه}} \begin{array}{c|c|c|c} x < 0 & 0 \leq x < 1 & 1 \leq x < 2 & x \geq 2 \\ 3-x & 3-3x & 1-x & x-3 \end{array} \xrightarrow{\text{مینیمم}} y = -1 \rightarrow R_y = [-1, +\infty)$

الف) $|3x-3| - |x+2|, K \xrightarrow{\text{ضابطه}} \begin{array}{c|c|c} x < -2 & -2 \leq x < 1 & x \geq 1 \\ 5-2x & 1-4x & 2x-5 \end{array}$
 $9 > K, 9 \leq K < 3, K \geq -3$

نتیجه: بازه $x > 1 \leftarrow$ که یک جواب دارد $K=3$ و $K=1$



الف) $y, 3x - [3x] \xrightarrow{\text{باتوجه به نمودار}} x - [x] \rightarrow R_y = [0, 1)$

ب) $y, 4x - 4[x] \xrightarrow{\text{باتوجه به نمودار}} 4(x - [x]) \rightarrow R_y = [0, 4)$

ج) $y, x - 5[\frac{x}{5}] \xrightarrow{\text{باتوجه به نمودار}} x - 5[\frac{x}{5}] \rightarrow R_y = [0, 5)$

د) $y, [2x] - 2x \xrightarrow{\text{باتوجه به نمودار}} [x] - x \rightarrow R_y = [-1, 0]$

الف) $y = 3\sin x + 2\cos x \rightarrow -\sqrt{13} \leq 3\sin x + 2\cos x \leq \sqrt{13} \rightarrow R_y = [-\sqrt{13}, \sqrt{13}]$

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

ج) $y = [2\sin x + 5\cos x] \rightarrow \sqrt{29} \leq 2\sin x + 5\cos x \leq \sqrt{29} \rightarrow R_y = \{-6, -5, -4, \dots, 4, 5\}$

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

الف) $y = \sin^2 x + 3\sin x + 2$
 $\sin x = 1 \rightarrow \max: 1 + 3 + 2 = 6$
 $\sin x = -1 \rightarrow \min: 1 - 3 + 2 = 0$
 $R_y = [0, 6]$

ب) $y = 2\sin^2 x + 3\sin x + 2$
 $\sin x = 1 \rightarrow \max: 2 + 3 + 2 = 7$
 $\sin x = -\frac{3}{4} \rightarrow \min: \frac{18}{16} - \frac{9}{4} + 2 = \frac{7}{8}$
 $R_y = [\frac{7}{8}, 7]$

الف) $y = \sin^2 x + 4\cos^2 x \rightarrow \sin^2 x + 4(1 - \sin^2 x) = 4 - 3\sin^2 x$
 $\sin x = 1 \rightarrow \max: 4 - 3 = 1$
 $\sin x = 0 \rightarrow \min: 4$

ب) $y = \frac{2\cot x}{1 + \cot^2 x} = \frac{2 \frac{\cos}{\sin}}{\frac{1}{\sin^2}} = 2\sin x \cos x = \sin 2x \rightarrow R_y = [-1, 1]$

الف) $y = \sin^6 x + \cos^6 x \rightarrow 2^{-2} \leq \sin^6 x + \cos^6 x \leq 1 \rightarrow R_y = [\frac{1}{4}, 1]$

ب) $y = [\sin^8 x + \cos^8 x] \rightarrow 2^{-3} \leq \sin^8 x + \cos^8 x \leq 1 \rightarrow R_y = \{0, 1\}$

الف) $y = \frac{2x^2 + 7x - 4}{x + 4} = \frac{(x+4)(2x-1)}{(x+4)} = 2x-1 \rightarrow R_y = \mathbb{R}$

ب) $y = \frac{x^3 - 1}{x - 1} = \frac{(x-1)(x^2 + x + 1)}{(x-1)} \rightarrow \min: 1 \rightarrow R_y = [1, +\infty)$