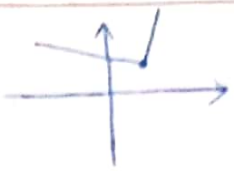
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ۷ کلاس ..... B .....

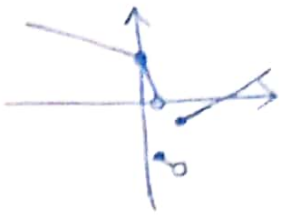
۱

الف) $x+|2x-4|=y \Rightarrow \begin{cases} 3x-4 & x \geq 2 \\ 4-x & x<2 \end{cases}$



$R_f=[2,+\infty)$

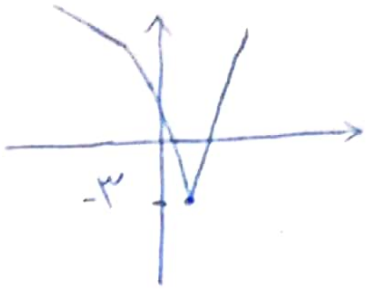
ب) $y=|x-2|+|x-1|-|x| \Rightarrow \begin{cases} x-3 & x \geq 2 \\ -x-3 & 2>x \geq 1 \\ -3x+3 & 1>x \geq 0 \\ -x+3 & 0>x \end{cases}$



$R_f=[-1,+\infty) \cup [-4,-3)$

۲

$y=|3x-3|-|x+2| \Rightarrow \begin{cases} -2x+5 & -2>x \\ 1-4x & 1>x \geq -2 \\ 2x-5 & x \geq 1 \end{cases}$

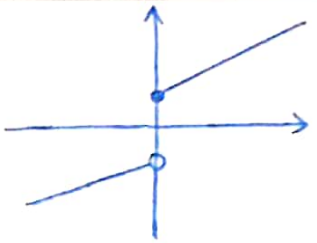


$|3x-3|-|x+2|=K \longrightarrow K=-3$

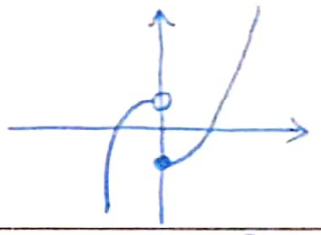
فقط یک جواب

۳

الف) $y=x+\frac{x}{|x|} \Rightarrow \begin{cases} x+1 & x \geq 0 \\ x-1 & x<0 \end{cases}$



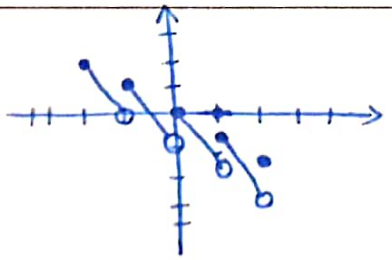
ب) $y=x|x|-\frac{x}{|x|} \Rightarrow \begin{cases} x^2-1 & x \geq 0 \\ -x^2+1 & x<0 \end{cases}$



۴

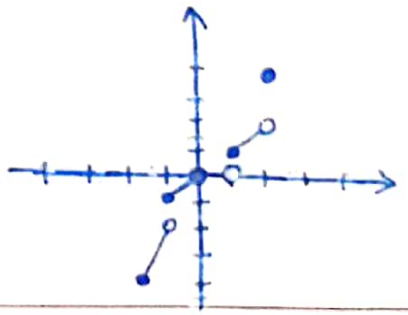
الف) $y=[x]-2x \Rightarrow$

$\frac{-2+4}{-1+2}$ $-2-(-1)$



ب) $y=[x]|x|$ $x=-2$ $-2 \cdot 1=-2$ $-1 \cdot 0$ $-2 \cdot 2=-4$ $-1 \cdot 1=-1$ $-0/5 \times 0/5$

در بازه $[-2,2]$



۵

الف) $3x-[3x] \longrightarrow R_f=[0,1)$

ب) $4x-4[x] \longrightarrow 4(x-[x]) \longrightarrow R_f=[0,4)$

ج) $x-5\left[\frac{x}{5}\right] \longrightarrow 5\frac{x}{5}-5\left[\frac{x}{5}\right] \Rightarrow 5\left(\frac{x}{5}-\left[\frac{x}{5}\right]\right) \longrightarrow R_f=[0,5)$

د) $[2x]-2x \longrightarrow -(2x-[2x]) \longrightarrow R_f=(-1,0]$

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

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

ج) $y = [3\sin x + 5\cos] \Rightarrow 3\sin x + 5\cos x \Rightarrow R_f = [-\sqrt{34}, \sqrt{34}]$ ۶

$\Rightarrow R_f = \{-4, -5, -6, -7, \dots, 4\}$

د) $y = \sqrt{\cos x - 4\sin x} \Rightarrow \cos x - 4\sin x \Rightarrow R_f = [-\sqrt{5}, \sqrt{5}] \Rightarrow R_f = [0, \sqrt[4]{5}]$

الف) $y = \sin^2 x + 3\sin x + 2$

$\sin x = 1 \Rightarrow y = 6_{max}$ $\quad \sin x = \frac{-b}{2a} = \frac{-3}{2} \Rightarrow y = \frac{9}{4} - \frac{9}{2} + 2 = \frac{9-18+8}{4} = \frac{-1}{4}$

$\sin x = -1 \Rightarrow y = 0$ $\quad R_f = [\frac{-1}{4}, 6]$ $\quad _{min}$ ۷

ب) $2\sin^2 x + 3\sin x + 2 = y$

$\sin x = 1 \Rightarrow y = V_{max}$ $\quad \sin x = \frac{-b}{2a} = \frac{-3}{4} \Rightarrow y = \frac{9}{16} - \frac{9}{4} + 2 \Rightarrow y = \frac{9-36+32}{16} = \frac{5}{16}$

$\sin x = -1 \Rightarrow y = 1$ $\quad R_f = [\frac{5}{16}, V]$ $\quad _{min}$

الف) $y = \sin^2 x + 3\cos^2 \Rightarrow y = 1 + \underbrace{3\cos^2}_{[0,3]} \Rightarrow R_f = [1, 4]$

ب) $y = \frac{2\cot x}{1 + \cot^2 x} \Rightarrow y = \frac{\frac{2\cos}{\sin}}{\frac{1}{\sin^2}} \Rightarrow y = 2\cos^2 \sin^2 x \Rightarrow y = \frac{1}{2} \times 2 \times \sin 2x$ ۸

$\Rightarrow y = \sin 2x \Rightarrow R_f = [-1, 1]$

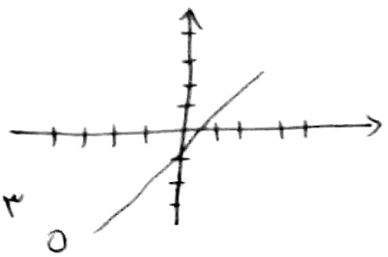
الف) $y = \sin^6 x + \cos^6 x \longrightarrow R_f = [\frac{1}{4}, 1]$ $\quad 2^{1-k} \leq \sin^{2k} x + \cos^{2k} x \leq 1$

ب) $y = [\sin^8 x + \cos^8 x] \longrightarrow \sin^8 x + \cos^8 x = R_f = [\frac{1}{8}, 1]$

$\Rightarrow R_f = \{0, 1\}$ ۹

الف) $y = \frac{2x^2 + 7x - 4}{x + 4} \Rightarrow y = \frac{(2x-1)(x+4)}{(x+4)} = 2x - 1$

$R_f = \mathbb{R} - \{-9\}$



ب) $y = \frac{x^3 - 1}{x - 1} \Rightarrow y = \frac{(x-1)(x^2+x+1)}{(x-1)} \Rightarrow y = x^2 + x + 1$ ۱۰

$1 + 1 + 1 \neq 3$

$R_f = [\frac{3}{4}, +\infty) - \{3\}$ $\quad x_s = \frac{-b}{2a} = \frac{-1}{2}$ $\quad y_s = \frac{1}{4} - \frac{1}{2} + 1 = \frac{3}{4}$