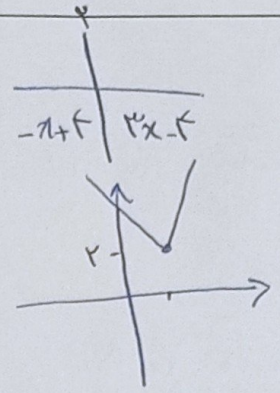
نام و نام خانوادگی ..... پاسخنامه تشریحی تکلیف شماره ...۷... کلاس .....

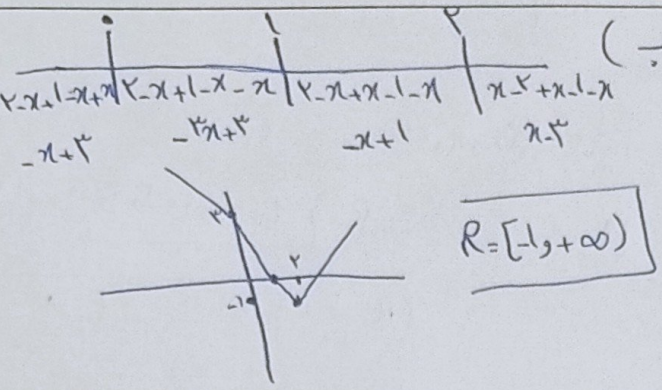
۱

الف) $|2x-4|+x$



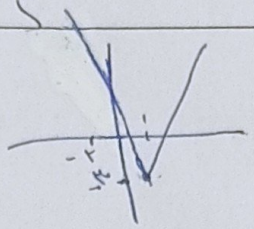
$R=[2,+\infty)$

ب)



$R=[-1,+\infty)$

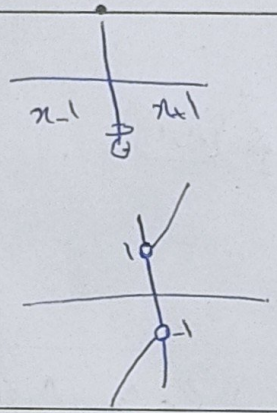
۲



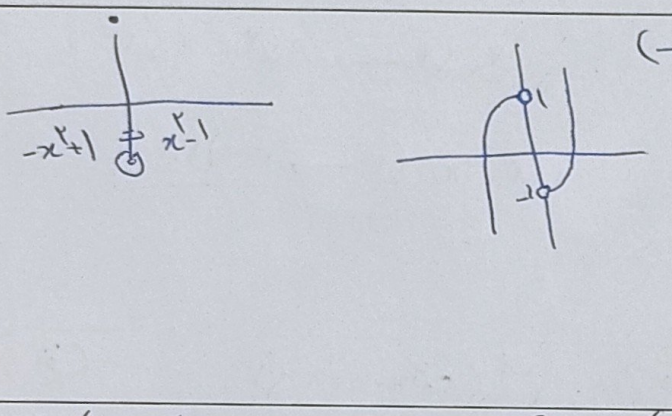
ارسته $\begin{cases} x=-2 \to k=9 \\ x=1 \to k=-3 \end{cases}$

۳

الف) $x+\frac{x}{|x|}$

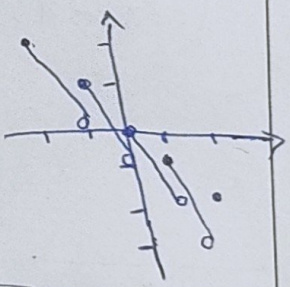


ب)

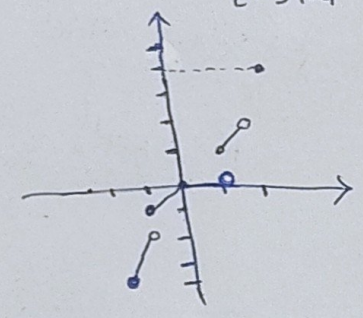


۴

الف) $x-2[x]$



ب) $x|[x]|$



۵

الف) $x-3[\frac{x}{3}] \to R=[0,3)$

ب) $x-4[x] \to 4(x-[x]) \to R=[0,4)$

ج) $x-5[\frac{x}{5}] \to 5(\frac{x}{5}-[\frac{x}{5}]) \to R=[0,5)$

د) $x-2[2x] \to R=[0,1)$

۶

الف)

$-\sqrt{9+4} \leq 3\sin x + 2\cos x \leq \sqrt{9+4}$

$R = [-\sqrt{13}, \sqrt{13}]$

ج)

$\sqrt{4+3\omega} \leq 2\sin x + \omega\cos x \leq \sqrt{4+3\omega}$

$[2\sin x, \omega\cos x] \rightarrow R = \{-9, -\omega, -6, -4, -3, -2, -1, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$

$\leftarrow$

$-\sqrt{14+9} \leq 3\sin x - 2\cos x \leq \sqrt{14+9}$

$R = [-\omega, \omega]$

$0 \leq \cos x - 2\sin x \leq \sqrt{1+4}$

$R = [0, \sqrt{\omega}]$

۷

الف)

$\sin^2 x + 2\sin x + 2$

$\sin x = -1 \rightarrow y = 0$

$\sin x = 1 \rightarrow y = 4$

$R = [0, 4]$

$\leftarrow$

$2\sin^2 x + 2\sin x + 2$

$x = \frac{-b}{2a} = \frac{-2}{4} \rightarrow y = \frac{1}{8}$

$\sin x = -1 \rightarrow y = 1$

$\sin x = 1 \rightarrow y = 7$

$R = [\frac{1}{8}, 7]$

۸

الف)

$\sin^2 x + \cos^2 x + 2\cos^2 x \rightarrow 1 + 2\cos^2 x$

$0 \leq \cos^2 x \leq 1 \rightarrow 0 \leq 2\cos^2 x \leq 2$

$1 \leq 2\cos^2 x + 1 \leq 3 \rightarrow R = [1, 3]$

$\leftarrow$

$\frac{2\cot x}{\frac{1}{\sin^2 x}} = \frac{2\cos x}{\sin x} \times \sin^2 x = 2\cos x \sin x = \sin 2x$

$-1 \leq \sin 2x \leq 1$

$R = [-1, 1]$

۹

الف)

$1 \leq \sin^4 x + \cos^4 x \leq 1$

$\frac{1}{2} \leq \sin^4 x + \cos^4 x \leq 1$

$R = [\frac{1}{2}, 1]$

$\leftarrow$

$\frac{1}{8} \leq \sin^8 x + \cos^8 x \leq 1$

$2^{1-8} \leq \sin^8 x + \cos^8 x \leq 1$

$[\sin^8 x + \cos^8 x] < 1$

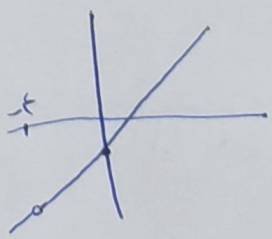
$R = \{0, 1\}$

۱۰

الف)

$\frac{(2x-1)(x+3)}{(x+3)} = 2x - 1$

$R = \mathbb{R} - \{-3\}$



$\leftarrow$

$\frac{(x-1)(x^2+x+1)}{(x-1)} = x^2 + x + 1$

$x = \frac{-b}{2a} = \frac{-1}{2} \rightarrow y = \frac{3}{4}$

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