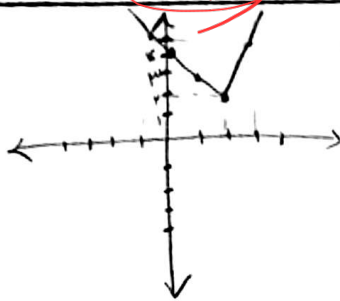


۱۹, ۲۰

الف) $\begin{cases} 3x-3 : x > 2 \\ 2 : x = 2 \\ -x+3 : x < 2 \end{cases}$

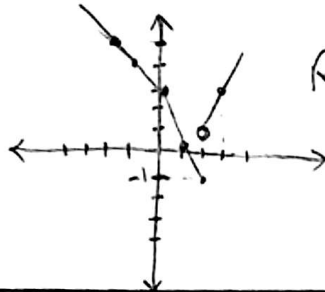


$R = [2, +\infty)$

-۱

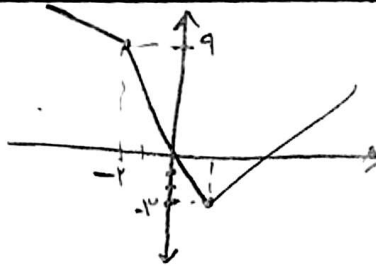
۵

ب) $\begin{cases} 2x-3 : x > 2 \\ -2x+3 : 0 < x < 1 \\ -x+1 : 1 < x < 2 \\ -x+3 : x < 0 \end{cases}$



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

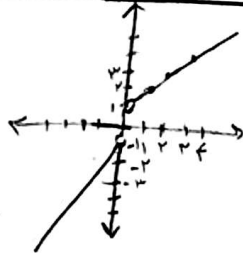
$\begin{array}{c|c|c} -2 & 1 & \\ \hline -2x+3 & -2x-1 & 2x-3 \\ \hline \textcircled{3} & \textcircled{-1} & \end{array}$
 $K = -3$



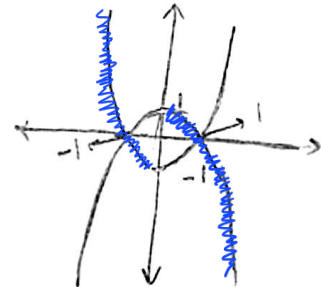
-۲

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الف) $\begin{cases} x > 0 \rightarrow x+1 \\ x < 0 \rightarrow x-1 \end{cases}$

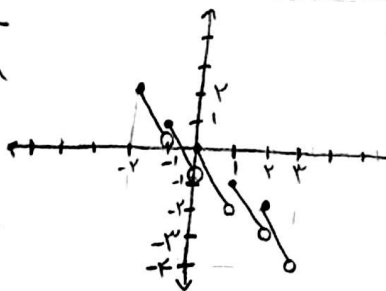


ب) $\begin{cases} x > 0 \rightarrow x^2-1 \\ x < 0 \rightarrow -x^2+1 \end{cases}$



۱, ۷۵

الف) $\begin{cases} -2 < x < -1 \rightarrow -2-2x \\ -1 < x < 0 \rightarrow -1-2x \\ 0 < x < 1 \rightarrow -2x \\ 1 < x < 2 \rightarrow -2x+1 \\ 2 < x < 3 \rightarrow -2x+2 \end{cases}$



ب) $R = [0, 1)$

-۳

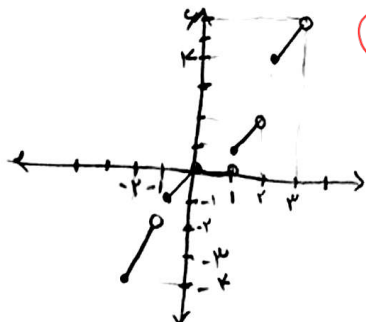
ج) $f(x - [x]) \Rightarrow R = [0, 1)$

د) $y = \sin\left(\frac{x}{\pi} - \left[\frac{x}{\pi}\right]\right) \Rightarrow R = [0, \pi)$

ه) $[-1, 0]$

۵

ب) $\begin{cases} -2 < x < -1 \rightarrow 2x \\ -1 < x < 0 \rightarrow x \\ 0 < x < 1 \rightarrow 0 \\ 1 < x < 2 \rightarrow x \\ 2 < x < 3 \rightarrow 2x \end{cases}$



۵

$$\text{ii)} \quad -\sqrt{13} \leq x \sin \alpha + y \cos \alpha \leq \sqrt{13} \Rightarrow R = [-\sqrt{13}, \sqrt{13}] \quad -9$$

$$\Rightarrow -\sqrt{10} \leq r \sin \alpha - r \cos \alpha \leq \sqrt{10} \Rightarrow R = [-\omega, \omega]$$

$$\Rightarrow \frac{-\sqrt{19}}{-0.118} \leq Y \sin \alpha + 0 \cos \alpha \leq \frac{\sqrt{19}}{0.118} \xrightarrow{\text{حالات}} \begin{cases} -4 & 0 \\ -0.118 & Y \\ -0.118 & Y \\ -0.118 & Y \\ -0.118 & Y \\ -0.118 & Y \\ -0.118 & Y \end{cases} \rightarrow R = \begin{cases} -4, -0.118, -0.118, -0.118, -0.118, -0.118, -0.118 \end{cases}$$

$$2) -\sqrt{\omega} \leq -Y \sin \alpha + Z \cos \alpha \leq \sqrt{\omega} \quad R = [0, \sqrt{\omega}]$$

ثالثاً $\sin \alpha \rightarrow -1 \Rightarrow y = 1$
 $\hookrightarrow 1 \Rightarrow y = 9 \Rightarrow R = [1, 9]$
 $\hookrightarrow -\frac{b}{2a} = -\frac{10}{2} \Rightarrow y = -\frac{1}{2}$
 ٥٤

[illegible]

الف) $1 - \cos^2 x + k \cos^2 x = 1 + k \cos^2 x \begin{cases} x=0 \Rightarrow y=1 \\ x=1 \Rightarrow y=k \end{cases} \Rightarrow R = [1, k]$ (5) - 1

$$\therefore Y \times \frac{\cos \theta}{\sin \theta} \times \sin \theta = Y \cos \theta \sin \theta = \sin \theta \Rightarrow R \in [9]$$

الف) $\frac{1}{\sqrt{k}} \leq \sin^2 \eta + \cos^2 \eta \leq 1 \Rightarrow R = \left[\frac{1}{\sqrt{k}}, 1 \right]$

$$\text{ب) } \sin^2 \theta + \cos^2 \theta \leq 1 \xrightarrow{\text{برکشتن}} \begin{cases} 0 \\ 1 \end{cases} \Rightarrow R = \{0, 1\}$$

$$\frac{(Y_{n-1})(n+K)}{n+K} = Y_{n-1} \rightarrow \text{graph} \Rightarrow R = IR - \{9\}$$

$$\therefore \frac{(n-1)(n^2+n+1)}{n-1} = n^2+n+1 \Rightarrow R = \left[\frac{n}{2}, +\infty\right)$$

$$\left| -\frac{b}{r_a} = \frac{1}{r} \right|$$