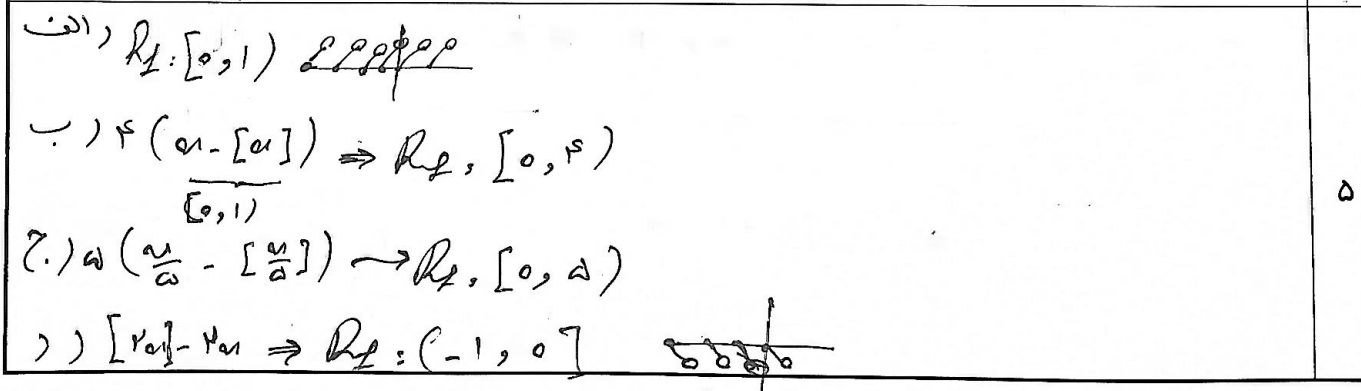
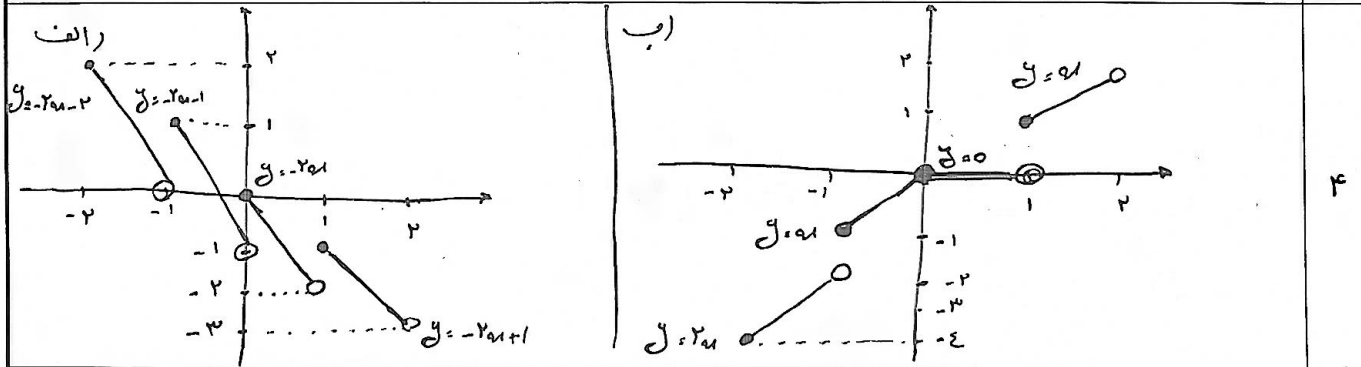
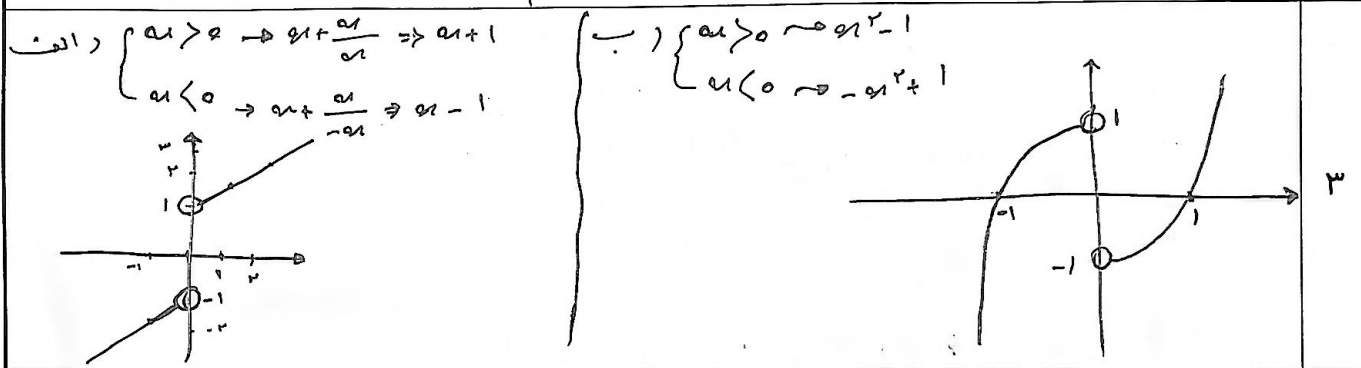
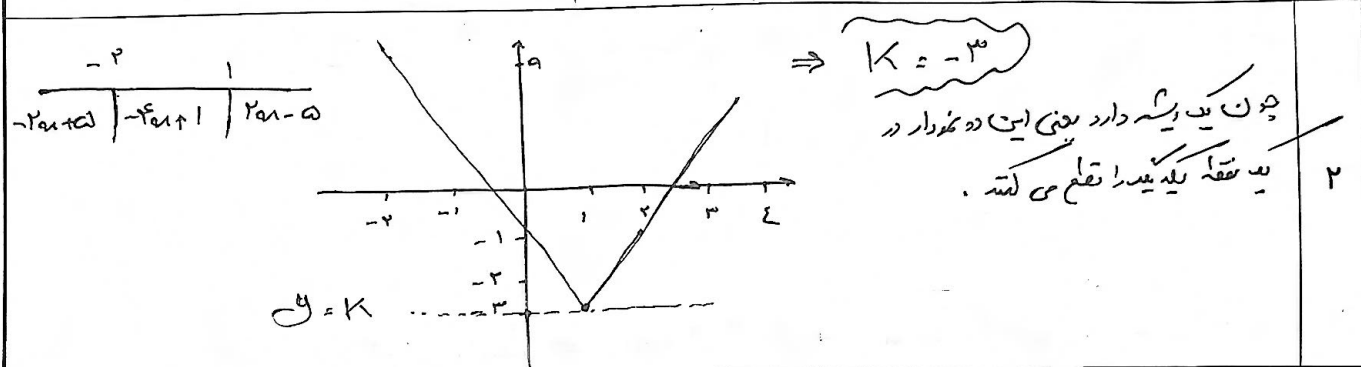
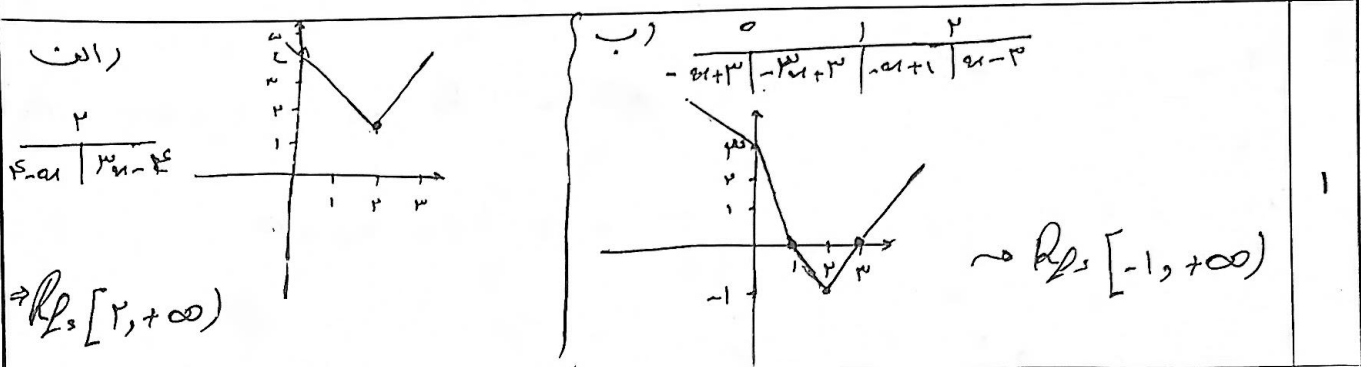
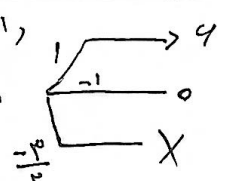
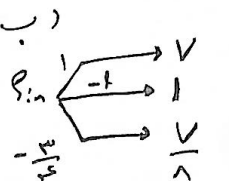




الف) $-\sqrt{4+9} \leq 3 \sin \alpha + 2 \cos \alpha \leq \sqrt{4+9} \Rightarrow R_f = [-\sqrt{13}, +\sqrt{13}]$ ب) $-\sqrt{14+9} \leq 3 \sin \alpha - 3 \cos \alpha \leq \sqrt{14+9} \Rightarrow R_f = [-\omega, +\omega]$ ج) $\left[\frac{2 \sin \alpha + \omega \cos \alpha}{[-\sqrt{29}, +\sqrt{29}]} \right] \Rightarrow R_f: \{k \mid k \in \mathbb{Z}, -\sqrt{29}k \leq \omega\} \cup R_f: \{-\sqrt{29}-\omega, -\sqrt{29}, -\sqrt{29}+\omega, 0, \sqrt{29}-\omega, \sqrt{29}, \sqrt{29}+\omega\}$ د) $\sqrt{-2 \sin \alpha + \cos \alpha} \rightarrow -\sqrt{\omega} \leq -2 \sin \alpha + \cos \alpha \leq \sqrt{\omega} \Rightarrow R_f = [0, \sqrt[5]{\omega}]$	
الف)  $\Rightarrow R_f = [0, q]$ ب)  $\Rightarrow R_f = [\frac{v}{\lambda}, v]$	7
الف) $\frac{2 \sin^2 \alpha + \cos^2 \alpha + 3 \cos^2 \alpha}{1} \sim 1 + 3 \frac{\cos^2 \alpha}{[0,1]} \Rightarrow R_f = [1, 4]$ ب) $\frac{\frac{2 \cos^2 \alpha}{\sin^2 \alpha}}{\frac{1}{\sin^2 \alpha}} = 2 \cos^2 \alpha \sim [-1, 1]$	8
الف) $\mu^{1-3} \leq \sin^2 \alpha + \cos^2 \alpha \leq 1 \rightarrow R_f = [\frac{1}{\mu^3}, 1]$ ب) $\left[\frac{2 \sin^2 \alpha + \cos^2 \alpha}{[\frac{1}{\lambda}, 1]} \right] \rightarrow R_f = \{0, 1\}$	9
الف) $\frac{(a+4)(2a-1)}{(a+4)} = 2a-1, a \neq -4 \Rightarrow R_f = \mathbb{R} - \{-4\}$	
ب) $\frac{(a-1)(a^2+a+1)}{(a-1)} \Rightarrow y = a^2+a+1 \rightarrow \frac{-b}{2a} = \frac{-1}{2} \Rightarrow R_f = [\frac{3}{4}, +\infty)$ $\rightarrow (-\frac{1}{2})^2 - \frac{1}{2} + 1 = \frac{3}{4}$	10