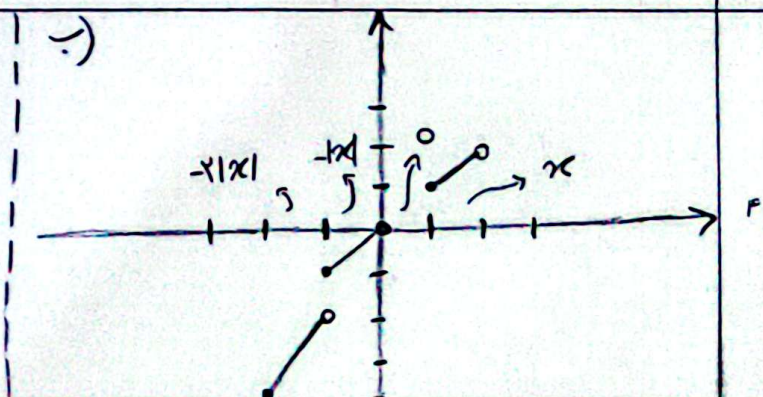
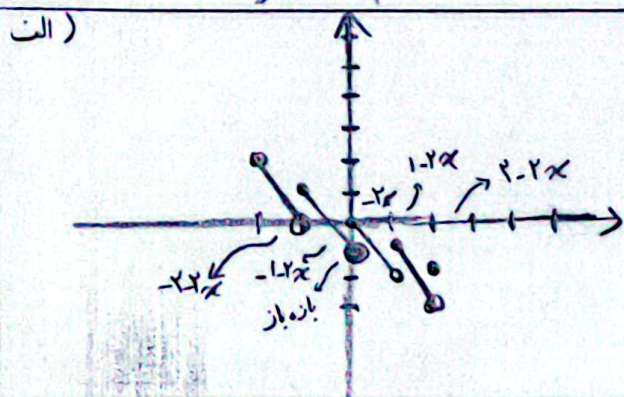
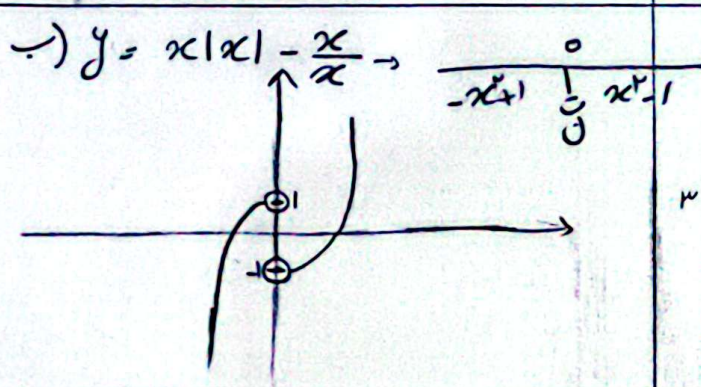
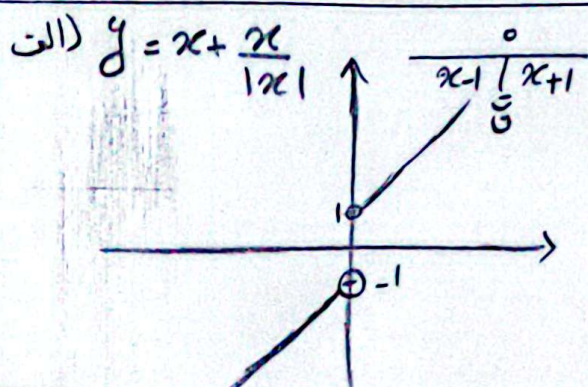
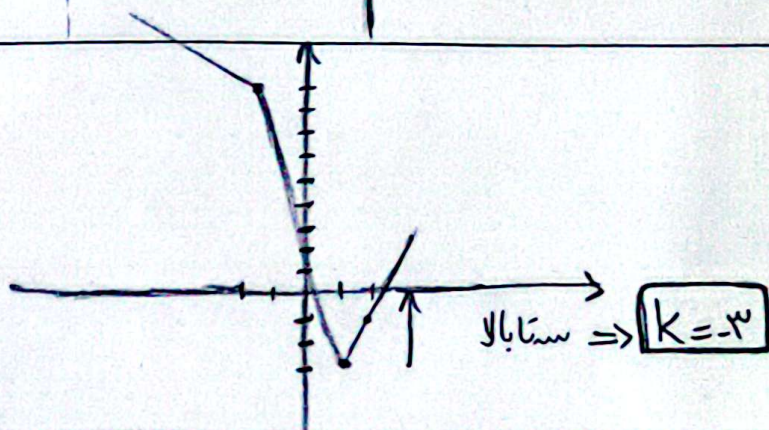
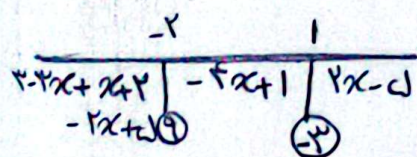
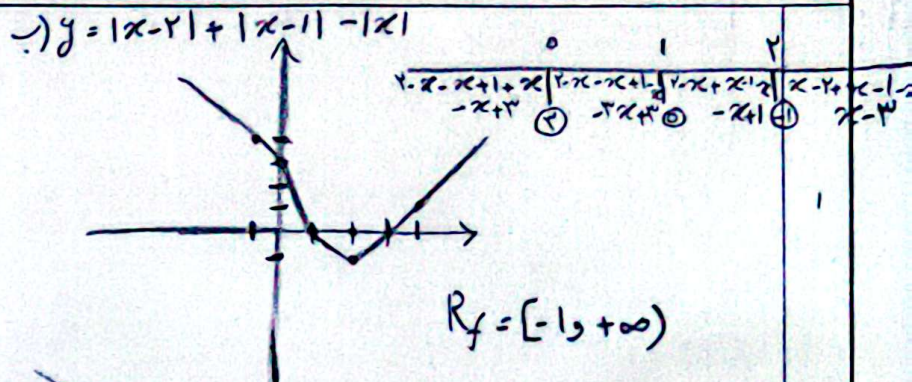
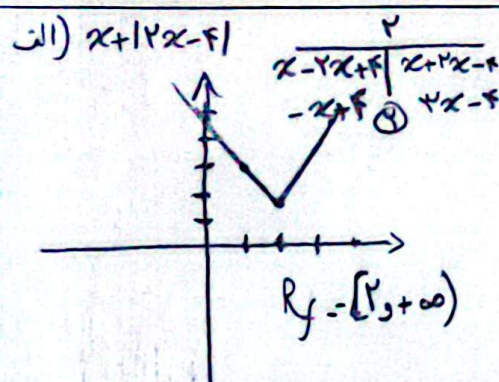




الف) $R_f = [0, 1]$

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

ج) $R_f = [0, 4)$

د) $R_f = (-1, 0]$

الف) $y = 3\sin x + 2\cos x$

د) $R_f = [0, \sqrt{13}]$

$-\sqrt{13} \leq 3\sin x + 2\cos x \leq \sqrt{13}$

ب) $-4 \leq 4\sin x - 3\cos x \leq 4$ بازه α برآید آن

ج) $-\sqrt{19} \leq 2\sin x + 4\cos x \leq \sqrt{19} \Rightarrow R_f \rightarrow \{-4, -3, -2, -1, 0, 1, 2, 3, 4\}$

الف) $y = \sin^2 x + 3\sin x + 2$

$y = \sin^2 x + 3\sin x + 2$

$\sin=1 \rightarrow y=6$

$\frac{\sin 1}{\sin 1} y = v$

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

$\frac{\sin -1}{\sin -1} y = 1$

$\sin=\frac{-2}{\sqrt{5}} \rightarrow y=-\frac{1}{5}$

$\frac{\sin -\frac{2}{\sqrt{5}}}{\sin -\frac{2}{\sqrt{5}}} y = \frac{v}{\lambda}$

$R_f = [-\frac{1}{5}, 6] \rightarrow R_f = [\frac{v}{\lambda}, v]$

الف) $y = \sin^2 x + 4\cos^2 x$

ب) $y = \frac{4\cot x}{1+\cot^2 x} = \frac{4\cos x}{\sin x} = 4\cos x \sin x$

$\rightarrow y = \sin^2 x + 4 - 4\sin^2 x = 4 - 3\sin^2 x$

$\frac{1}{\sin^2 x} \sin x = \sin^2 x$

$\rightarrow R_f = [1, 4]$

$R_f = [-1, 1]$

$y = \sin^4 x + \cos^4 x \Rightarrow R_f = [\frac{1}{2}, 1]$

طبق $y^{1-k} \leq \sin^k x + \cos^k x \leq 1$

ب) $\rightarrow [\sin^4 + \cos^4]$

$R_f = \{0, 1\}$

خود $\sin^4 + \cos^4 \rightarrow [\frac{1}{2}, 1]$ سوی

$y = \frac{2x^2 + 7x - 4}{x+4} = \frac{(2x-1)(x+4)}{x+4} = 2x-1$ بین $x=1$ و $x=4$ می باشد $R_f = \mathbb{R} - \{-9\}$

$y = \frac{x^2-1}{x-1} = \frac{(x-1)(x+1)}{x-1} = x+1$ بازه $x=1$ و $x=4$ می باشد $R_f = [\frac{5}{4}, +\infty) - \{3\}$