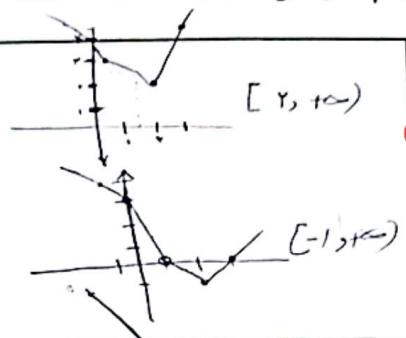


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الف) $y = x + |2x - 4| \rightarrow \begin{cases} x \geq 2 \rightarrow 3x - 4 \\ x < 2 \rightarrow -x + 4 \end{cases}$

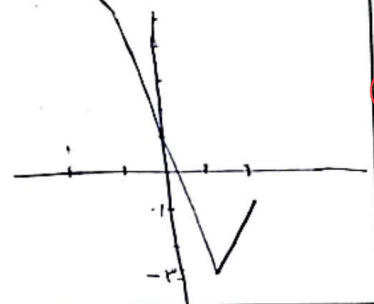


ب) $y = |x - 2| + |x - 1| - |x| \rightarrow \begin{cases} x < 0 \rightarrow -x + 3 \\ 0 \leq x < 1 \rightarrow -x + 2 \\ 1 \leq x < 2 \rightarrow -x + 1 \\ x \geq 2 \rightarrow -x \end{cases}$

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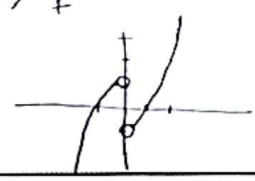
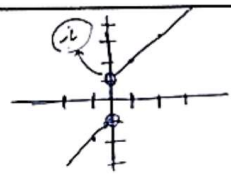
$|3x - 3| - |x + 2| = k$
 $Q(-2) = 9$
 $Q(1) = -3$
 گزین شماره ۱

$\begin{array}{c|c|c} -2 & 1 & \\ \hline -x+5 & -x+1 & 2x-5 \end{array}$



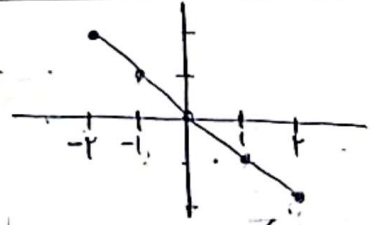
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الف) $y = x + \frac{x}{|x|} \rightarrow \begin{cases} x > 0 \rightarrow x + 1 \\ x < 0 \rightarrow x - 1 \end{cases}$
 ب) $y = x|x| - \frac{x}{|x|} \rightarrow \begin{cases} x > 0 \rightarrow x^2 - 1 \\ x < 0 \rightarrow 1 - x^2 \end{cases}$
 ج) $x = 0$ ص ۰

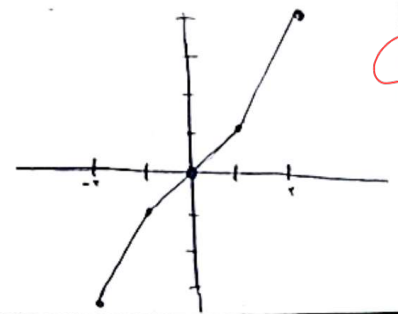


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الف) $[x] - x$



ب) $y = [x]|x| \rightarrow$ باقیمانده اعداد باید در بازه $[-2, 2]$ رقم شود



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الف) $y = 3x - [3x] \rightarrow R = [0, 1)$

ب) $y = 4x - 4[x] \rightarrow 4(x - [x]) \rightarrow 0 \leq 4x - 4[x] < 4 \rightarrow R = [0, 4)$

ج) $y = x - 5[\frac{x}{5}] = 5(\frac{x}{5} - [\frac{x}{5}]) \rightarrow 0 \leq \frac{x}{5} - [\frac{x}{5}] < 1 \rightarrow 0 \leq x - 5[\frac{x}{5}] < 5$

د) $y = [2x] - 2x \rightarrow (-1, 0]$

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$1) y = r \sin x + r \cos x \rightarrow [-\sqrt{2}, \sqrt{2}] \rightarrow [-\sqrt{2}, \sqrt{2}]$
 $2) y = r \sin x - r \cos x \rightarrow [-\sqrt{2}, \sqrt{2}] \rightarrow [-\sqrt{2}, \sqrt{2}]$
 $3) y = [r \sin x + r \cos x] \rightarrow [-\sqrt{2}, \sqrt{2}] \rightarrow [-\sqrt{2}, \sqrt{2}]$
 $4) y = \sqrt{r \cos x - r \sin x} \rightarrow [-\sqrt{2}, \sqrt{2}] \rightarrow [-\sqrt{2}, \sqrt{2}]$
 $\rightarrow R = [-\sqrt{2}, \sqrt{2}]$

$1) y = \sin^2 x + r \sin x + r \rightarrow \sin x = \frac{r}{1} = \frac{r}{1} \rightarrow R(-\frac{r}{1}) = -\frac{1}{r}$
 $\rightarrow \sin = 1 \rightarrow y = 1$
 $\rightarrow \sin = -1 \rightarrow y = 0$
 $\rightarrow R = [-\frac{1}{r}, 1]$
 $2) y = r \sin^2 x + r \sin x + r \rightarrow \sin = 1 \rightarrow r + r + r = 3r \rightarrow R = [3r, 3r]$
 $\sin = -1 \rightarrow r - r + r = r$
 $\frac{-b}{2a} = \frac{r}{1} \rightarrow R(-\frac{r}{1}) = \frac{r}{1}$

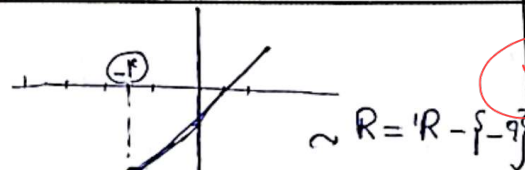
$1) y = \sin^2 x + r \cos^2 x = \sin^2 x + \cos^2 x + r \cos^2 x = 1 + r \cos^2 x$
 $\rightarrow 1 \leq 1 + r \cos^2 x \leq 1 + r$
 $\rightarrow R = [1, 1+r]$

$1) y = \frac{r \cos x}{1 + \cos x} = r \frac{\cos x}{1 + \cos x} \times \frac{1 - \cos x}{1 - \cos x} = r \frac{\cos x (1 - \cos x)}{1 - \cos^2 x} = r \frac{\cos x (1 - \cos x)}{\sin^2 x}$
 $\rightarrow R = [-1, 1]$

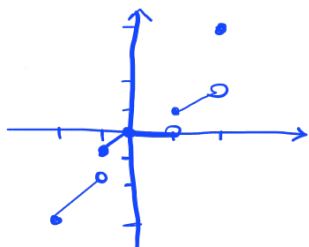
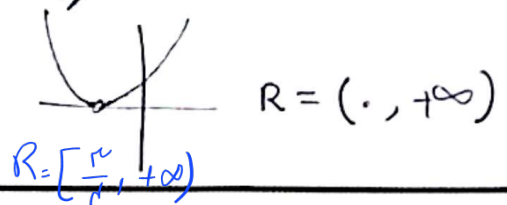
$1) y = \sin^2 x + \cos^2 x \rightarrow \frac{1}{2} \leq \sin^2 x + \cos^2 x \leq 1 \rightarrow R = [\frac{1}{2}, 1]$

$1) y = [\sin^2 x + \cos^2 x] \rightarrow \frac{1}{2} \leq \sin^2 x + \cos^2 x \leq 1$
 $\rightarrow R = [\frac{1}{2}, 1]$

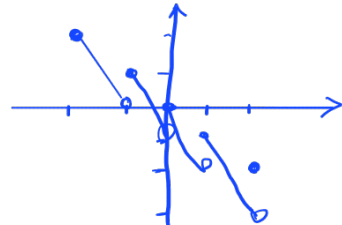
$1) y = \frac{r x^2 + v x - f}{x + f} = \frac{(x + f)(r x - 1)}{(x + f)}$



$1) y = \frac{r x^2 - 1}{x - 1} = \frac{(x - 1)(r x + 1)}{x - 1}$
 $\rightarrow R = [\frac{r}{r}, +\infty)$



(L)



(L)