

(تکلیف ۷)

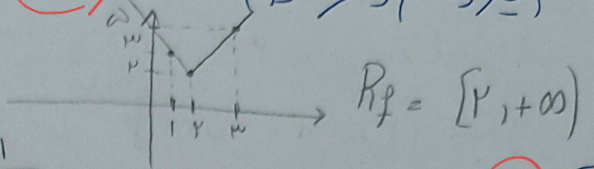
(فاصله مسکن)

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(یا زدهم رخ B)

الف) $y = x + |2x - 4|$

$$\begin{cases} x \geq 2 \\ x < 2 \end{cases}$$

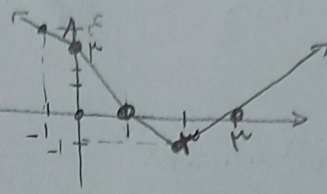


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ب) $y = |x - 2| + |x - 1| - |x|$

x	-1	0	1	2	3
y	4	3	0	-1	0

فصله $\rightarrow -x+3 \mid -x+3 \mid -x+1 \mid x-2$



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

$|3x - 3| - |x + 2| = k$

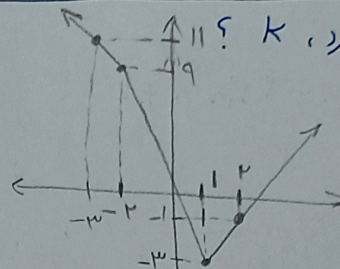
$3 - 3x + x + 2 = k \mid 3 - 3x - x - 2 = k \mid 3x - 3 - x - 2 = k$

$-2x + 5 = k \mid -4x + 1 = k \mid 2x - 5 = k$

$x \mid -3 \mid -2 \mid 1 \mid 2$

$y \mid 11 \mid 9 \mid -3 \mid -1$

$K = -10$ در نقطه قطع

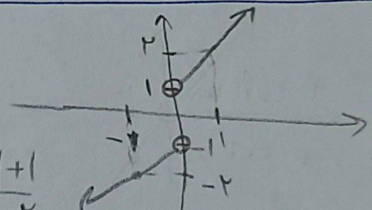


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الف) $y = x + \frac{x}{|x|}$

$x + \frac{x}{-x} = x - 1 \mid x + \frac{x}{x} = x + 1$

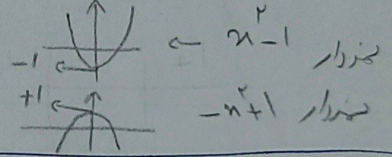
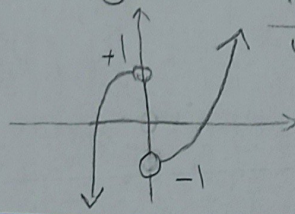


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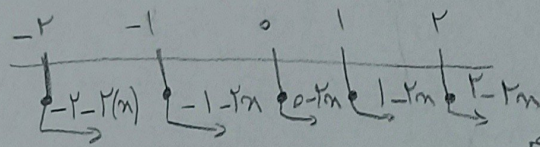
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ب) $y = x|x| - \frac{x}{|x|}$

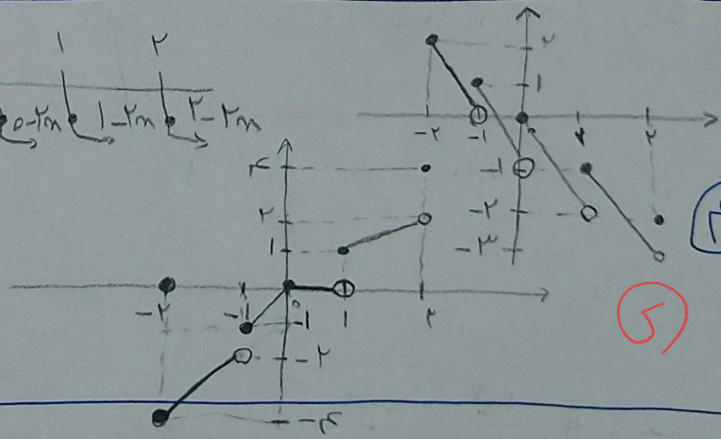
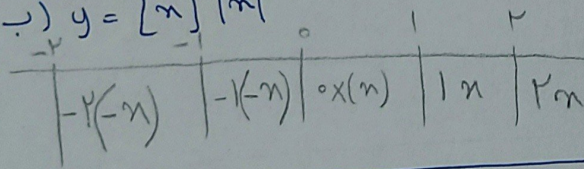
$-x^2 - (-1) \mid x^2 - 1$



الف) $y = [x] - 2x$



ب) $y = [x] |x|$



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الف) $y = 3x - [3x] \quad R_f = [0, 1)$

ب) $y = 4x - \{4x\} \quad R_f = [0, 4)$

ج) $y = x - \omega\left[\frac{x}{\omega}\right] \quad R_f = [0, \omega)$

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

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الف) $y = 3\sin n + 2\cos n \rightarrow -\sqrt{3^2+2^2} \leq 3\sin n + 2\cos n \leq \sqrt{3^2+2^2} \quad R_f = [-\sqrt{13}, \sqrt{13}]$

ب) $y = 8\sin n - 3\cos n \rightarrow -\sqrt{14^2+9} \leq 8\sin n - 3\cos n \leq \sqrt{14^2+9} \quad R_f = [-2, 2]$

ج) $y = [2\sin n + 0\cos n] \rightarrow R_f = [-\sqrt{4}, \sqrt{4}] \xrightarrow{\text{دقت، دقت}} R_f = \{-4, -2, -2, -4, -2, -4\}$

د) $y = \sqrt{\cos n - 2\sin n} \rightarrow -\sqrt{1^2+1} \leq -2\sin n + \cos n \leq \sqrt{1^2+1} \xrightarrow{\text{دقت، دقت}} R_f = [-\sqrt{2}, \sqrt{2}] \rightarrow [0, \sqrt{2}]$

الف) $y = \sin^2 n + 3\sin n + 2$

$\sin n = 1 \rightarrow 1 + 3 + 2 = 6$

$\sin n = -1 \rightarrow 1 - 3 + 2 = 0$

$\sin n = \frac{-b}{2a} = \frac{-3}{2} \rightarrow -\frac{3}{2}$

ب) $y = 2\sin^2 n + 3\sin n + 2$

$\sin n = 1 \rightarrow 2 + 3 + 2 = 7$

$\sin n = -1 \rightarrow 2 - 3 + 2 = 1$

$\sin n = \frac{-b}{2a} = \frac{-3}{4} \rightarrow -\frac{3}{4}$

$R_f = [\frac{1}{4}, 7]$

$\sin n = \frac{-b}{2a} = \frac{-3}{4} \rightarrow \frac{1}{4} - \frac{9}{4} + \frac{1}{4} = \frac{1}{4} = \frac{1}{4}$

الف) $y = \sin^2 n + 4\cos^2 n$

$1 + (3\cos^2 n) \rightarrow R_f = [1, 4]$

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

$R_f = [-2, 2]$

الف) $y = \sin^4 n + \cos^4 n \rightarrow \frac{1}{4} \leq \sin^4 n + \cos^4 n \leq 1$

$R_f = [\frac{1}{4}, 1]$

ب) $y = [\sin^4 n + \cos^4 n]$

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

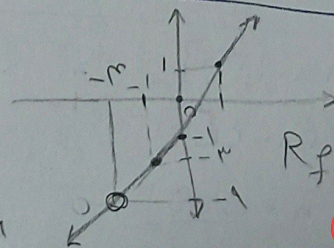
$\frac{1}{4} = \frac{1}{4}$

$R_f = [\frac{1}{4}, 1] \xrightarrow{\text{زیاده}} R_f = \{0, 1\}$

الف) $y = \frac{m^2 + 7m - 4}{m + 4} = \frac{(m + 4)(m - 1)}{m + 4} = m - 1$

فقط به توجه شدیم به اینکه $m \neq -4$

m	-1	0	1	-4
y	-5	-4	-3	-8



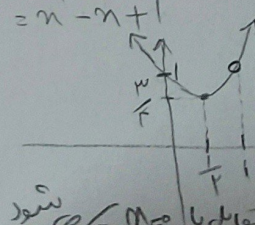
$R_f = R - \{-4\}$

ب) $y = \frac{m^2 - 1}{m - 1} = \frac{(m - 1)(m + 1)}{m - 1} = m + 1$

$\frac{-b}{2a} = \frac{1}{2}$

$\frac{-A}{2a} = \frac{1}{2}$

m	1
y	(1) + 1 = 2



$R_f = [\frac{3}{2}, +\infty)$

چون این که ترافیک از 0 = مقابل با 0 = شود