

تکلیف شماره

۱۸، ۲۵

پازرم

آرین المانی

الف) $y = x + |2x - 4|$

$$f(x) = \begin{cases} 3x - 4 & x > 2 \\ x & x = 2 \\ -x + 4 & x < 2 \end{cases}$$

$R_f =$

$[2, +\infty)$

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$y = \underbrace{|x-2|}_2 + \underbrace{|x-1|}_1 - \underbrace{|x|}_0$

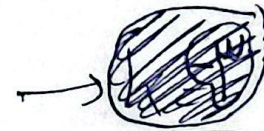
$$f(x) = \begin{cases} x-5 & x > 2 \\ -x+1 & 1 < x \leq 2 \\ -2x+3 & 0 \leq x \leq 1 \\ -x+3 & x < 0 \end{cases}$$

$R_f =$

$[-1, +\infty)$

$f(x) = \begin{cases} 2x-4 & x > 1 \\ -4x+4 & -2 \leq x \leq 1 \\ -2x+4 & x < -2 \end{cases}$

محدوده فقط $x=1$
نقطه صفر است
جواب در

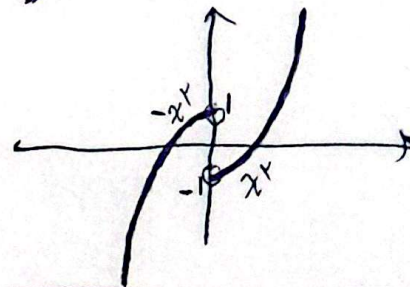
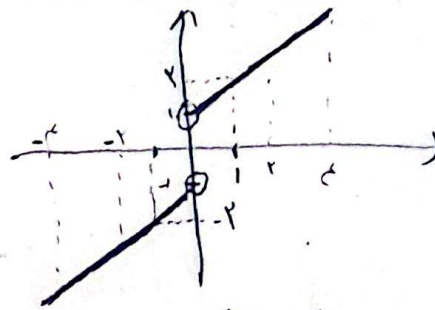


$k = -3$

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الف) $x > 0 \quad 1+x=y$
 $x < 0 \quad 1-x=y$

$x > 0 \quad x^2 = 1$
 $x < 0 \quad -x^2 + 1$

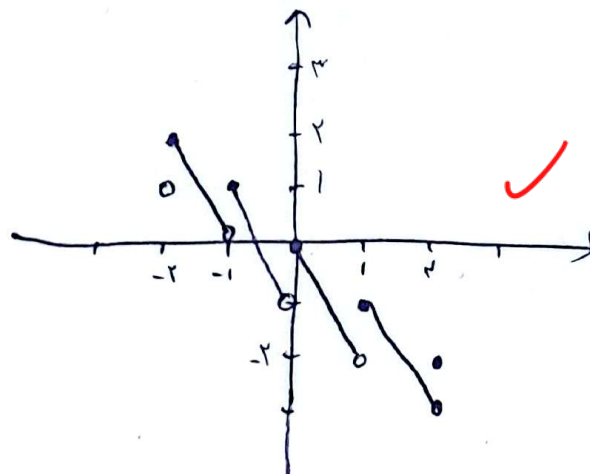


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الف) $y = [x] - 2x$

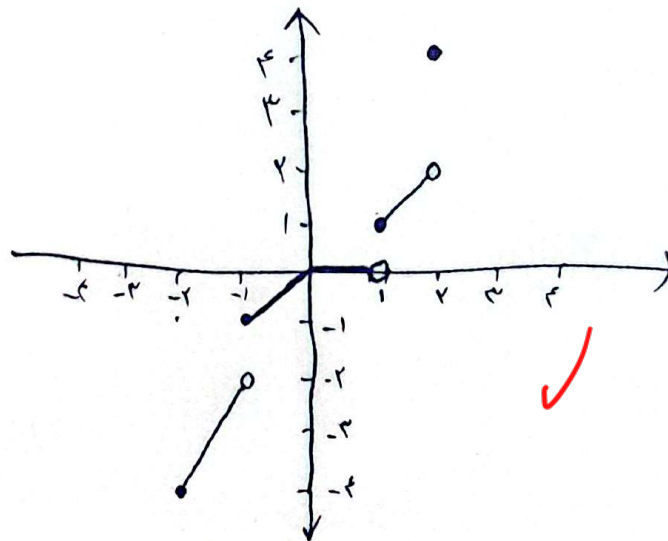
$$\begin{vmatrix} 0 & 1 & 1 \\ 0 & -1 & 1 \end{vmatrix}$$

$$\begin{vmatrix} 2 & -2 \\ -2 & 2 \end{vmatrix}$$



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ب) $y = [x] \cdot |x|$



باید حتماً بازه بندی هارو بنویس

$$y = \lceil x \rceil - [x] \rightarrow \lceil x \rceil = [x] + 1$$

$$0 \leq f(x) < 1 \quad f(x) = [0, 1) \quad \checkmark$$

(2)

$$b) \lceil x \rceil - \lceil [x] \rceil \quad f(x) = \lceil x \rceil - \lceil [x] \rceil = \lceil x - [x] \rceil$$

$$f(x) = [0, 1) \quad \checkmark$$

$$c) f(x) = x - d \left[\frac{x}{d} \right] \rightarrow d \left(\frac{x}{d} - \left[\frac{x}{d} \right] \right)$$

$$f(x) = [0, d) \quad \checkmark$$

$$d) f(x) = [\lceil x \rceil] - \lceil x \rceil \quad \text{من } 0 \text{ إلى } -1$$

$$f(x) = -(\lceil x \rceil - [x]) \rightarrow f(x) = [-1, 0) \quad \checkmark$$

قريب من 0
الف

$$الف) = \lceil \sin x \rceil + \lceil \cos x \rceil$$

$$y = [-\sqrt{a^2+b^2}, +\sqrt{a^2+b^2}]$$

$$f(x) = [-\sqrt{13}, \sqrt{13}] \quad \checkmark$$

(1, 13)

$$ب) = \lceil \sin x \rceil - \lceil \cos x \rceil$$

$$y = [-\sqrt{1^2+1^2}, +\sqrt{1^2+1^2}]$$

$$f(x) = [-1, +1] \quad \checkmark$$

$$ج) y = \lceil \sin x + \cos x \rceil$$

$$f(x) = [-\sqrt{2}, \sqrt{2}]$$

$$y = [-\sqrt{1+1}, +\sqrt{1+1}]$$

$$f(x) = [-1, 1] \quad \checkmark$$

$$د) y = \sqrt{\cos x - \sin x}$$

$$f(x) = 2$$

$$y = [-\sqrt{1}, +\sqrt{1}] \rightarrow [0, \sqrt{1}]$$

ج) $\sin \rightarrow [-1, 1] \mid \sin = y \in [-1, 1]$

$f(x) = y^4 + 3y + 2 \rightarrow (y+1)(y+2) \rightarrow f(-1) = 0 \quad f(1) = 4 \quad y = [0, 4]$ (2) - 1 ✓

ب) $\sin \rightarrow [-1, 1] \quad \sin = y = [-1, 1]$

$f(-1) = 1 \quad f(1) = 4 \quad y = \frac{-b}{2a} \rightarrow -\frac{3}{4}$

$y(-\frac{3}{4}) = 1(\frac{9}{16}) + 3(-\frac{3}{4}) + 2 = \frac{16}{16} - \frac{9}{4} = +\frac{7}{4}$

$y = [\frac{7}{4}, 4]$ ✓

ج) $\sin^2 + \cos^2 = 1 \rightarrow 1 + 3(\cos^2 x)$ (2) - 1

$\cos^2 \rightarrow [0, 1] \xrightarrow{\times 3} [0, 3] \xrightarrow{+1} [1, 4]$ ✓

ب) $\cot = \frac{\cos}{\sin}$

$f(x) = \frac{\cos(x) \cos(x)}{\sin(x)}$

د) $y = [-1, 1]$ ✓

ج) $\sin^4 x + \cos^4 x = (\sin^2 + \cos^2 x)^2 - 2\sin^2 \cos^2$ (2) - 9

$f(x) = 1 - 2\sin^2(x) \rightarrow f(x) = [\frac{1}{2}, 1]$ ✓

ب) $y = [\sin^4 x + \cos^4 x] \quad g(x) = [\frac{1}{2}, 1] \rightarrow y = \{0, 1\}$ ✓

ج) $\frac{(x-1)(x+1)}{x+1} \rightarrow y(-1) = 1(-1) = -1$ (1, 5) - 10

$y = \mathbb{R} - \{-1\}$ ✓

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

$y = [\frac{x}{1}, +\infty)$ ✓

لا حصل كامل!

