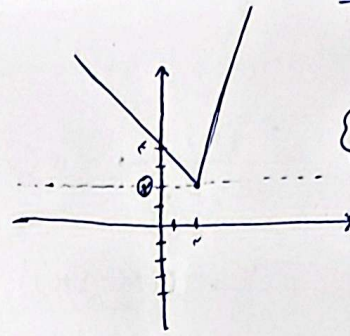
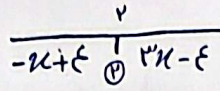


بازدم سپر ۱۸,۵

معین کسری

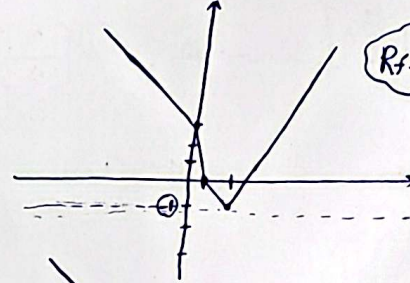
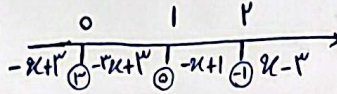
تالین شمارن

الف) $y = x + |2x - 4|$



۲
R+ = [2, +infinity)

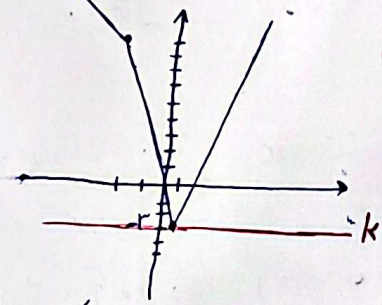
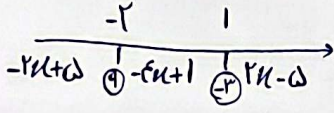
ب) $y = |x - 2| + |x - 1| - |x|$



۲
R+ = [-1, +infinity)

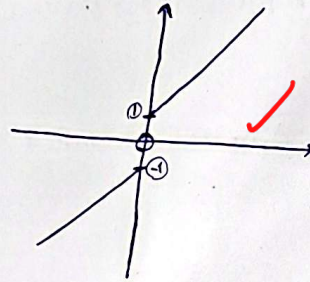
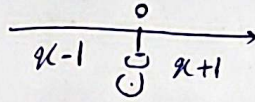
$|3x - 3| - |x + 2| = k$

یک ریشه دار یعنی! بار خردی کنه با این
تابع $k = -3$



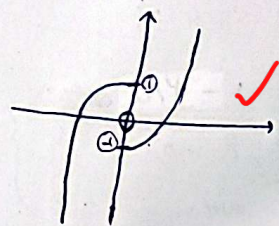
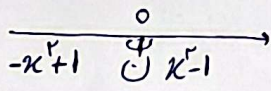
۲

الف) $y = x + \frac{x}{|x|}$



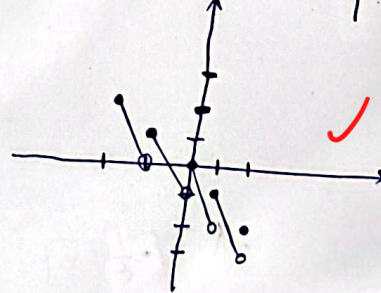
۲

ب) $y = x|x| - \frac{x}{|x|}$



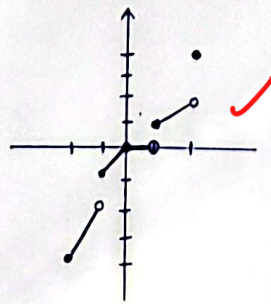
الف) $y = [x] - 2x$

فقط بندی ها رو حقیقی بنویس



۱

ب) $y = [x]|x|$



۵

الف) $y = 2x - [2x] \xrightarrow{\text{تابع سر بالا}} 0 \leq 0 - [0] < 1 \rightarrow R_f = [0, 1)$ ✓

۲

ب) $y = 4x - 4[x] \xrightarrow{\text{تابع سر بالا}} 1^4(x - [x]) \xrightarrow{[0, 1)} R_f = [0, 4)$ ✓

ج) $y = x - \Delta \left[\frac{x}{\Delta} \right] \xrightarrow{\Delta \frac{x}{\Delta} - \Delta \left[\frac{x}{\Delta} \right]} \xrightarrow{\Delta \text{ ناقص}} \Delta \left(\frac{x}{\Delta} - \left[\frac{x}{\Delta} \right] \right) \xrightarrow{[0, 1)} R_f = [0, \Delta)$ ✓

د) $y = [2x] - 2x \xrightarrow{x \in (-1)} 2x - [2x] \rightarrow R_f = [-1, 0]$ ✓

الف) $y = 3 \sin x + 4 \cos x \rightarrow -\sqrt{13} \leq 3 \sin x + 4 \cos x \leq \sqrt{13} \rightarrow R_f = [-\sqrt{13}, \sqrt{13}]$ ✓

۶

۲

ب) $y = 5 \sin x - 3 \cos x \rightarrow -\sqrt{34} \leq 5 \sin x - 3 \cos x \leq \sqrt{34} \rightarrow R_f = [-\sqrt{34}, \sqrt{34}]$ ✓

$\sqrt{17} = \sqrt{2}$

ج) $y = [x \sin x + \Delta \cos x] \rightarrow [-\sqrt{17}, 3 \sin x + \Delta \cos x, \sqrt{17}] \rightarrow R_f = \{-\sqrt{17}, -\Delta, -\epsilon, \dots, 3, \epsilon, \Delta\}$ ✓

د) $y = \sqrt{\cos x - 2 \sin x} \rightarrow -\sqrt{5} \leq \cos x - 2 \sin x \leq \sqrt{5} \rightarrow R_f = [0, \sqrt{5}]$ ✓

الف) $y = \sin^2 x + 3 \sin x + 2 \rightarrow \sin x \rightarrow -1 \leq \sin x \leq 1 \rightarrow -\frac{5}{4} \leq y \leq \frac{5}{4}$

۷

$\sin x = -\frac{3}{4} \rightarrow \text{min}$
 $\sin x = 1 \rightarrow \text{max}$
 $\sin x = -1 \rightarrow \text{min}$
 $R_f = [0, 4]$ ✓

۲

ب) $y = 2 \sin x + 3 \sin x + 2$

$\sin x = -\frac{3}{4} \rightarrow \text{min}$
 $\sin x = 1 \rightarrow \text{max}$
 $\sin x = -1 \rightarrow \text{min}$
 $R_f = [\frac{5}{4}, \frac{5}{4}]$ ✓

الف) $y = \sin^2 x + \epsilon \cos^2 x \rightarrow \sin^2 x + \epsilon \cos^2 x + 1$ $\begin{cases} \cos x = 0 \rightarrow \min = 1 \\ \cos x = 1 \rightarrow \max = \epsilon \end{cases}$ $R_f = [1, \epsilon]$ ✓ (۲) (۱)

ب) $y = \frac{\cos^2 x}{(1 + \cos^2 x)} = \frac{\cos^2 x}{\frac{1}{\sin^2 x}} \rightarrow \cos^2 x \sin^2 x \rightarrow \sin^2 2x \rightarrow R_f = [-1, 1]$ ✓

ج) $y = \sin^2 x + \cos^2 x \rightarrow \frac{1}{x} \leq \sin^2 x + \cos^2 x \leq 1 \rightarrow R = [\frac{1}{x}, 1]$ ✓ (۱, ۷۵) (۹)

د) $y = [\sin^2 x + \cos^2 x] \rightarrow \frac{1}{x} \leq \sin^2 x + \cos^2 x \leq 1 \rightarrow 0 \leq [\sin^2 x + \cos^2 x] \leq 1$
 $R_f = \{0, 1\}$ از برای فقط عدد صحیح
 باید بدید

ه) $y = \frac{x^2 + 7x - 6}{x + 6} \rightarrow \frac{(x-1)(x+6)}{(x+6)} = x-1$

$R_f = \mathbb{R} - \{-6\}$ ✓

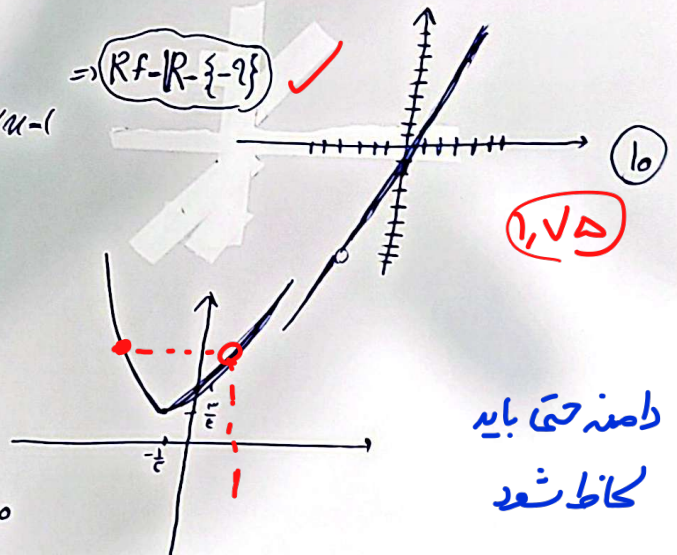
و) $y = \frac{x^2 - 1}{x - 1} \rightarrow \frac{(x-1)(x+1)}{x-1} = x+1$

$D = \mathbb{R} - \{1\}$

$-\frac{1}{\epsilon}$
 $(\frac{3}{\epsilon})$

$a > 0$
 $\downarrow$
 min

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



دامنه حتی باید
 گنا شود