

گرفتن مسلمان؟
 1) $(x - 2[\frac{x}{2}])^2 \rightarrow f(\frac{x}{2} - [\frac{x}{2}])^2$
 $0 \leq x < 1 \xrightarrow{x \in \mathbb{R}} 0 \leq x < \varepsilon$ میزان B

• $\hookrightarrow -\sin x + \log y - \varepsilon = 0 \rightarrow \log y = \sin x + \varepsilon \rightarrow y = 10^{\sin x + \varepsilon}$
 $-1 \leq \sin x \leq 1 \rightarrow [10^{-1}, 10^1]$

2) $\sqrt{\frac{x^2 - \varepsilon}{x^2 - 4}} \begin{cases} \xrightarrow{0} \frac{1}{4} \\ \xrightarrow{+\infty} 1 \end{cases}$ نقطه مقبول $\rightarrow [0, \frac{1}{4}] \cup (1, +\infty)$
 $a+b+c = 1 + \frac{1}{4} + 0 = \frac{5}{4}$

3) 1) $f(x) = x + \frac{1}{x} + 2\sqrt{x + \frac{1}{x}} \rightarrow \sqrt{x + \frac{1}{x}} = z$
 $\sqrt{x + \frac{1}{x}} \xrightarrow{\text{میزان}} \sqrt{2} \quad [2 + \sqrt{2}, +\infty)$
 $z^2 + 2z$

$\hookrightarrow (3 - \sin x)(1 + \sin x) \quad -1 \leq \sin x \leq 1 \quad [0, 4]$
 $2 \leq \dots \leq 4 \quad 0 \leq \dots \leq 2 \rightarrow \max = 4, \min = 0$

4) $f(x) = -\frac{1}{x}x + 10$ $1, 2, 3, 4, 5, 6, 7, 8, 9$
 $\left(\frac{1}{9} + 10\right) + \left(\frac{2}{8} + 10\right) + \left(\frac{3}{7} + 10\right)$ 9x10 = 90
 $90 - 10 = 80$ $\frac{9 \times 10}{2} = 45$ $\frac{-45}{2} = -22.5$

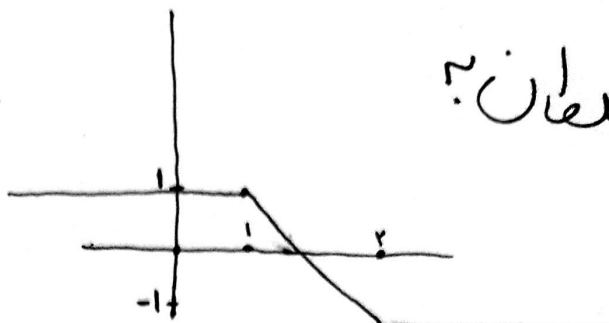
5) $f(x) = \sqrt{ax^2 + bx + c} \quad [2, +\infty)$ $ax^2 + bx + c = a(x-r)^2$
میزان $a=1, b=-f, c=\varepsilon$

$g(x) = \sqrt{-\varepsilon x^2 + x - 1} \rightarrow \frac{-\Delta}{\varepsilon a} = \varepsilon \rightarrow \sqrt{\varepsilon} = 2 \rightarrow (0, 2]$

4) $|x-2| - |x-1| = Kx$

$\frac{2}{x-2} - \frac{1}{x-1} \Rightarrow \frac{1}{x-1}$

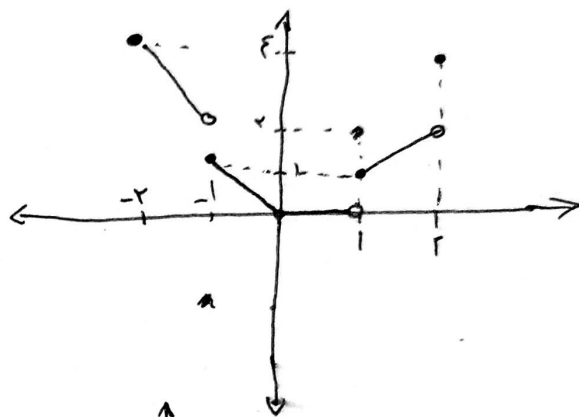
$\frac{1}{x-1} \Rightarrow -1 = Kx \Rightarrow K = -\frac{1}{x}$



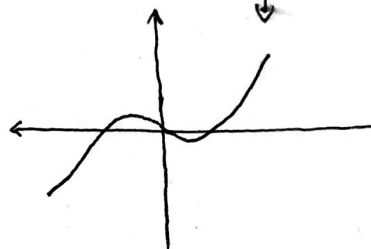
مستقیم نیست

باز هم

5) الف) $x[x] \begin{cases} x=2 \rightarrow 2 \\ 1 \leq x < 2 \rightarrow [x]=1 \\ 0 \leq x < 1 \rightarrow [x]=0 \\ -1 \leq x < 0 \rightarrow [x]=-1 \\ -2 \leq x < -1 \rightarrow [x]=-2 \end{cases}$



$x|x| - x \begin{cases} x \geq 0 \rightarrow x^2 - x \\ x \leq 0 \rightarrow -x^2 - x \end{cases}$



6) $y = \frac{1}{x} + \frac{1}{x+1} + \frac{1}{x^2+x} \rightarrow y = \frac{2x+2}{x^2+x} \rightarrow yx^2 + yx = 2x+2$
 $\rightarrow yx^2 + (y-2)x - 2 = 0 \rightarrow \Delta = (y-2)^2 + 8y$

7) $f(x) = \frac{x - 5\sqrt{x} + 4}{x - 2\sqrt{x} + 1} \rightarrow \frac{(\sqrt{x}-5)(\sqrt{x}-1)}{(\sqrt{x}-1)^2} \Rightarrow \frac{\sqrt{x}-5}{\sqrt{x}-1} = y$

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

8) $f(x) = \frac{x^3 + 2x^2 - x - 2}{x^2 - 1} = \frac{(x-1)(x+1)(x+2)}{(x-1)(x+1)} = x+2$

$x+1 = 5$