

$$f(x+1) + f(x-1) = 1^x x + f(1^x) \Rightarrow 2f(x) = 1^x + f(1^x)$$

$$f(1^x) = 1^x \Rightarrow \sqrt{f(x) - x^x} \Rightarrow \sqrt{-x^x + x} = \sqrt{x(x-1)} \Rightarrow R_f = [1, +\infty)$$

$$R_f \rightarrow \frac{x(x+1)(x-1)}{(x+1)} = 9$$

$$x^2 - 2x = 9$$

$$a = -9 \quad b = 12$$

$$\sqrt[3]{(x-1)^3} = x-1 \Leftarrow \sqrt[3]{x^3 + ax^2 + bx - 1}$$

$$[-9, 12]$$

$$\begin{aligned} -9-2 &= -11 \\ 12-2 &= 10 \end{aligned}$$

$$[-11, 10] = R_f$$

$$(x-1)^3 \Rightarrow x^3 - 3x^2 + 3x - 1$$

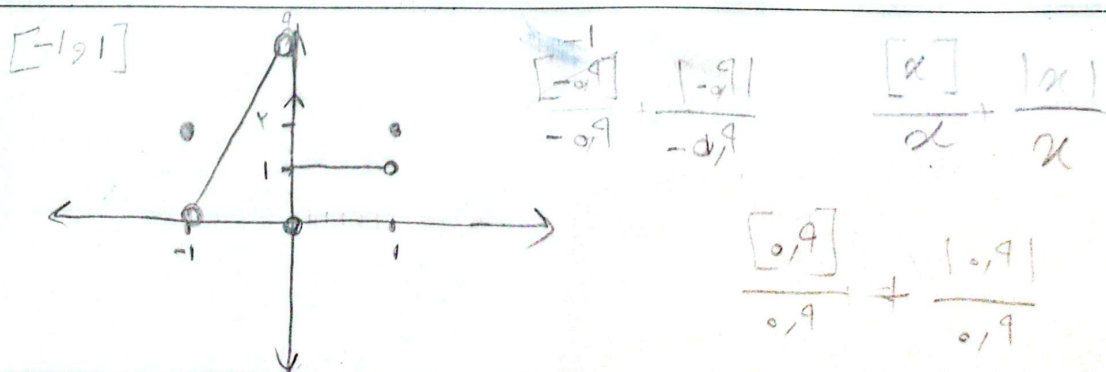
$$y = \frac{ax^2 - 1}{x^2 + b}$$

$$\left(\frac{x-1}{x+1}\right)^6 \Leftarrow \left(\frac{x+1}{x-1}\right)^{\frac{1}{6}}$$

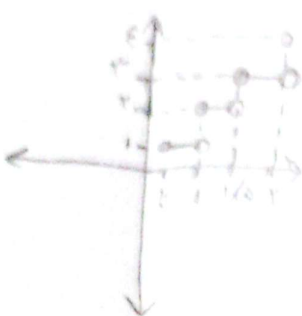
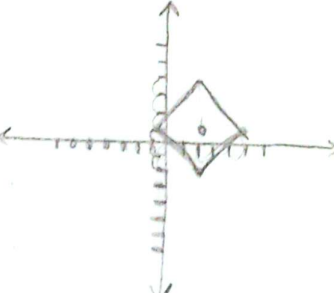
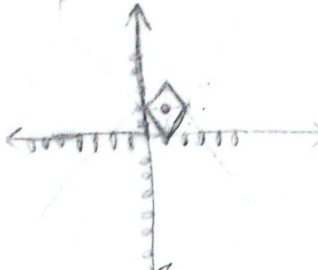
$$y(x^2 + b) = ax^2 - 1$$

$$y(x^2 - ax^2 + by - 1) = 0 \Rightarrow x^2(y-a) + by - 1$$

$$b^2 - 4(-1)(y-a) \geq 0 \Rightarrow b^2 + 4y - 4a \geq 0$$



قريب خا زي

	$\left(\frac{1}{2}, 1\right)$	$[x] + [x + \frac{1}{2}]$	6
$-1 < \frac{x+1}{ax+1} < 1 \Rightarrow \frac{x+1-ax-1}{ax+1} < 0 \Rightarrow \frac{(1-a)x}{ax+1} < 0 \Rightarrow a=1$			7
$ x-1 + y-1 = 1$			8
$ x-1 + y-2 \leq 1$		$ x-1 + y-2 = -1$	9
$y = 3x + 2x + 10 $			10