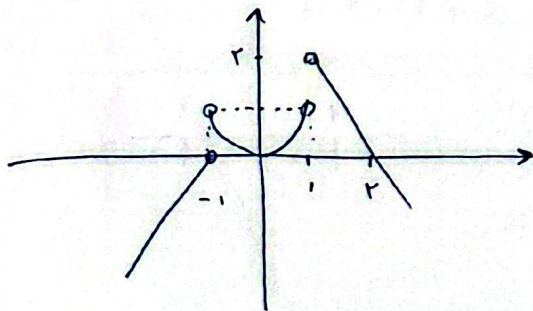


الف) $\begin{cases} y_1^3 = 2x_1^2 - 1 \\ y_2^3 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1^3 = y_2^3 \rightarrow y_1 = y_2$ تابع ✓
 ب) $\begin{cases} y_1^3 + y_1 = 2x_1^2 - 1 \\ y_2^3 + y_2 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1^3 + y_1 = y_2^3 + y_2 \rightarrow y_1^3 - y_2^3 + y_1 - y_2 = 0$ تابع ✓
 $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2)(y_1 + y_2 + 1) = 0$ $\begin{cases} y_1 y_2 = 0 \rightarrow y_1 = y_2 \\ y_1 = \frac{-y_2 \pm \sqrt{\Delta}}{2} \Rightarrow \Delta < 0 \end{cases}$ تابع ✓
 نه تکرار نیست

الف) $y = x^2 - 1$  تابع ✓
 ب) $|y| + xy = x^2 + 1 \xrightarrow{x=0} |y| = 1 \quad y = \pm 1$ تابع ✗
 ج) $y^3 + x^3 = 2x - 1 \xrightarrow{x=0} y^3 = -1 \quad y = -1$ تابع ✓
 د) $\sqrt[3]{y} + \sqrt[3]{x} = 2 \xrightarrow{x=0} \sqrt[3]{y} = 2 \quad y = 8$ تابع ✓

الف) $\tan \frac{\pi}{3} = \tan 40^\circ \rightarrow \frac{\sin 40^\circ}{\cos 40^\circ} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$
 ب) $\cot \frac{\sqrt{3}\pi}{4} = \cot 110^\circ \rightarrow \frac{\cos 110^\circ}{\sin 110^\circ} = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \sqrt{3}$
 ج) $\tan 33^\circ \rightarrow \frac{\sin 33^\circ}{\cos 33^\circ} = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$
 د) $\cot 110^\circ \rightarrow \frac{\cos 110^\circ}{\sin 110^\circ} = \frac{-1}{0} = \infty$

الف) $\sin \alpha = \frac{1}{4} \quad \alpha = \frac{\pi}{4} \approx 15^\circ / \frac{5\pi}{4} \approx 225^\circ$
 ب) $\cos \alpha = \frac{\sqrt{2}}{2} \quad \alpha = \frac{\pi}{4} \approx 45^\circ / \frac{7\pi}{4} \approx 315^\circ$



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

	$f(x) = \begin{cases} -x+2 & x > 1 \\ x^2 & -1 \leq x \leq 1 \\ -x-1 & x < -1 \end{cases}$
الف) $(x-2)(x-4)(x-6)$ ب) $(x-2)(x-4)^2(x-6)$ ← به عنوان	$\begin{array}{c} 2 \quad 4 \quad 6 \\ - \phi + \phi - \phi + \\ + \phi - \phi - \phi + \end{array}$
الف) $y = \frac{(x-2)(x-6)}{x-4}$ ب) $y = \frac{(x-2)(x-6)}{(x-4)^2}$ ← به عنوان	$\begin{array}{c} 2 \quad 4 \quad 6 \\ - \phi + \phi - \phi + \\ + \phi - \phi - \phi + \end{array}$
الف) $y = \frac{x^2 - 4x + 2}{x^2 - 4x + 2} \rightarrow 0 = \text{مخرج صریح} \rightarrow \frac{(x-1)(x^2+x-2)}{x^2-4x+2} = \frac{(x-1)(x+2)(x-1)}{x^2-4x+2}$ $\begin{array}{c} 2 \quad 4 \quad 6 \\ + \phi - \phi - \phi + \end{array}$ ب) $\frac{x^2 - 4x + 2}{x^2 - 4x + 2} = \frac{(x-1)(x-2)}{(x-1)(x-2)}$ $\begin{array}{c} * \\ + \phi + \phi - \phi + \end{array}$	$\begin{array}{c} 2 \quad 4 \quad 6 \\ + \phi + \phi - \phi + \end{array}$
الف) $\frac{x^2 - 2x}{x^2 + x + 2} = \frac{(x^2 - 2x)(x^2 + x)}{x^2 + x + 2} \Rightarrow \frac{x^2(x-1)(x+1)}{x^2 + x + 2}$ $\Delta < 0$ → ب) $\frac{x^2 + 3x + 2}{x^2 + 2x + 2} = \frac{\Delta < 0}{\Delta < 0} \rightarrow$	$\begin{array}{c} -1 \quad 0 \quad 1 \\ + \phi - \phi - \phi + \end{array}$ عبارت همیشه مثبت است