

✓

$$\left. \begin{aligned} y_1^3 &= 2x_1^2 - 1 \\ y_2^3 &= 2x_2^2 - 1 \end{aligned} \right\} \xrightarrow{x_1^2 = x_2^2} y_1^3 = y_2^3 \Rightarrow \sqrt[3]{y_1^3} = \sqrt[3]{y_2^3} \Rightarrow \boxed{y_1 = y_2} \quad \text{تابع است}$$

$y_1^2 + y_1 = 1$ $y_2^2 + y_2 = 1$ $y_1^2 + y_1 = y_2^2 + y_2 \Rightarrow \boxed{y_1 = y_2}$

اجتماع اول و دوم $-(y_1 - y_2)(y_1^2 + y_1 + y_2^2 + y_2 + 1) = 0$

$y_1 - y_2 = 0 \Rightarrow \boxed{y_1 = y_2}$

$y_1^2 + y_1 + y_2^2 + y_2 + 1 = 0$

$$\Rightarrow \boxed{y = \pm 1} \quad \boxed{-\frac{1}{n} \leq \frac{1}{n} \leq \frac{1}{n}} \quad \checkmark$$

الف) $y = n^2 - 1 \rightarrow y = (n+1)(n-1)$

ب)  $y = x^2 - 1$ تا جابجاسته

ج) خطی محدودی دوبار نمودار

د) $y = x^2 - 1$ تا جابجاسته

$\sqrt[n]{y} = \sqrt[n]{r - \sqrt[n]{n_1}}$
 $\sqrt[n]{y} = \sqrt[n]{r - \sqrt[n]{n_2}}$

$y^k + n^k = r_{n-1} \Rightarrow y^r = ar_{n-1} - q^k$

$y = \sqrt[r]{r_{n-1} - n^k}$

تابع اول =

تابع دوم =

$$\cos \frac{V}{c} = \cos \gamma_0 \Rightarrow \frac{\cos \gamma_0}{\sin \gamma_0} = \frac{-\frac{V}{c}}{-\frac{c}{\gamma}} = \sqrt{\gamma}$$

$$\tan \frac{\pi}{4} = \tan 90^\circ \Rightarrow \frac{\sin \frac{\pi}{4}}{\cos \frac{\pi}{4}} = \frac{\frac{\sqrt{2}}{2}}{\frac{1}{2}} = \sqrt{2}$$

$$\cot 110^\circ = \frac{\cos 110^\circ}{\sin 110^\circ} = \frac{-1}{0} \text{ تنص}$$

$$\tan \theta = \frac{\sin \theta}{\cos \theta} = \frac{1}{\sqrt{1 - \frac{1}{\gamma^2}}} = \frac{\gamma}{\sqrt{\gamma^2 - 1}}$$

$\cos a = \frac{1}{\sqrt{2}}$
 $a = \frac{\pi}{4}, \frac{3\pi}{4}$ ✓

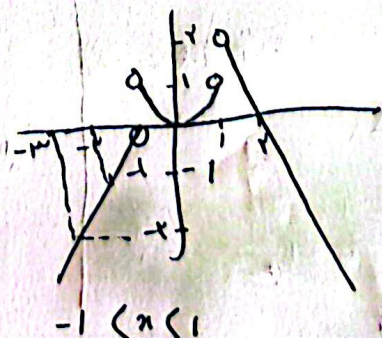


$\sin a = \frac{1}{r}$
 $a = \frac{\pi}{6}, \frac{5\pi}{6}$ ✓

$$\begin{array}{c|cc} & r & r \\ \hline y & 0 & -r \end{array}$$

$$y = x + 1$$

x	-2	-1	0
y	-1	0	1

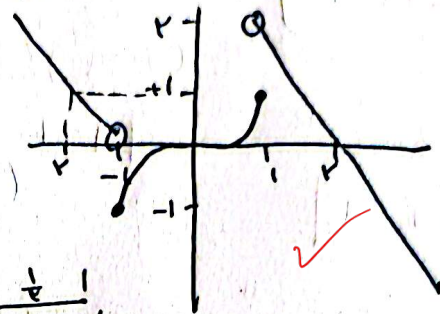


x	$-\frac{1}{2}$	0	$\frac{1}{2}$
y	$\frac{1}{2}$	0	$\frac{1}{2}$

$$\begin{array}{c|ccc} x & -x & -x^2 & -x^3 \\ \hline y & 3 & 2 & 1 \end{array}$$

$$\begin{array}{c|cc} x & x & -x-1 \\ \hline y & 1 & 0 \end{array}$$

$$\begin{array}{c|cccc} x & -1 & -\frac{1}{x} & 0 & \frac{1}{x} & 1 \\ \hline y & -1 & -\frac{1}{x} & 0 & \frac{1}{x} & 1 \end{array}$$



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$$y = (x-2)(x-3)(x-4)(x-5) \quad \left(\begin{array}{l} x=2 \\ x=3 \\ x=4 \\ x=5 \end{array} \right)$$

$$\begin{array}{ccccccc} & 2 & & 3 & & 4 & \\ + & \phi & - & \phi & - & \phi & + \end{array}$$

$$(x-2)(x-3)(x-4) = y \quad \left(\begin{array}{l} x=2 \\ x=3 \\ x=4 \end{array} \right)$$

$$\begin{array}{ccccccc} & 2 & & 3 & & 4 & \\ - & \phi & + & \phi & - & \phi & + \end{array}$$

دایره باز: $(-\infty, 2) \cup (3, 4) \cup (5, +\infty)$
 دایره بسته: $[2, 3] \cup [4, 5]$
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$$\frac{(x-2)(x-4)}{(x-3)(x-5)} \stackrel{x=2}{=} \frac{x-4}{x-5} \quad \left(\begin{array}{l} x=2 \\ x=3 \\ x=5 \end{array} \right)$$

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$$\frac{(x-1)(x+1)(x+2)}{x-3} \stackrel{x=1}{=} \frac{(x+1)(x+2)}{x-3} \quad \left(\begin{array}{l} x=1 \\ x=3 \end{array} \right)$$

$$\frac{x^3 - 3x^2 + 2x}{x-3} \Rightarrow \frac{x^3 - 3x^2 + 2x}{x-3} \quad \left(\begin{array}{l} x=1 \\ x=3 \end{array} \right)$$

$$\frac{x^3 - 3x^2 + 2x}{x-3} = \frac{(x-2)(x-1)(x+2)}{(x-3)(x-1)} \stackrel{x=2}{=} \frac{x+2}{x-3} \quad \left(\begin{array}{l} x=2 \\ x=3 \end{array} \right)$$

$$\begin{array}{ccccccc} & 2 & & 3 & & 4 & \\ + & \phi & - & \phi & - & \phi & + \end{array}$$

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$$\frac{x^3 + 3x^2 + 2x}{x^2 + 2x + 3} \Rightarrow \Delta = 9 - 12 = -3 < 0$$

این مقدار $\Delta < 0 \Rightarrow$ این مقدار $\Delta < 0$
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ج) $y^3 + x^3 = 2x - 1$

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تعریف ریاضی $\rightarrow \begin{cases} y_1^3 + x_1^3 = 2x_1 - 1 \\ y_2^3 + x_2^3 = 2x_2 - 1 \end{cases} \xrightarrow{x_1 = x_2} \begin{cases} y_1^3 + x^3 = 2x - 1 \\ y_2^3 + x^3 = 2x - 1 \end{cases} \rightarrow y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ تابع است.

$\hookrightarrow \sqrt[3]{y} + \sqrt[3]{x} = 2$

تعریف ریاضی $\rightarrow \begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x_1} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{x_2} = 2 \end{cases} \xrightarrow{x_1 = x_2} \begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{x} = 2 \end{cases} \rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \Rightarrow y_1 = y_2$ تابع است.