

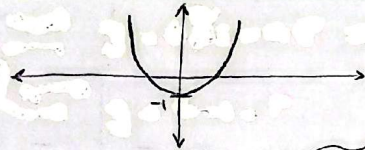
الف) $\begin{cases} y_1^3 = 2x_1^2 - 1 \\ y_2^3 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1^3 = y_2^3 \rightarrow \boxed{y_1 = y_2} \text{ تابع مستقیم}$

$y_1^3 + y_1 = y_2^3 + y_2 \quad y_1^2 + y_2 y_1 + y_2^2 + 1 = 0$

ب) $\begin{cases} y_1^3 + y_1 = 2x_1^2 - 1 \\ y_2^3 + y_2 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1^3 - y_2^3 + (y_1 - y_2) = 0 \quad y_1 = \frac{-y_2 \pm \sqrt{\Delta}}{2} \rightarrow y_1 = \frac{-y_2 + \sqrt{-3y_2^2 - 4}}{2}$

$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2) = 0 \rightarrow y_1 - y_2 = 0 \rightarrow \boxed{y_1 = y_2}$

الف) $y = x^2 - 1$
"تابع مستقیم"



د) $\begin{cases} \sqrt[3]{y_1} = 2 - \sqrt[3]{2x_1} \\ \sqrt[3]{y_2} = 2 - \sqrt[3]{2x_2} \end{cases} \xrightarrow{x_1 = x_2} \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow \boxed{y_1 = y_2}$

ج) $y^3 + x^3 = x - 1$

ب) $x=0 \rightarrow |y| = 1 \rightarrow y = \pm 1$

$\sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow \boxed{y_1 = y_2}$
"تابع مستقیم"

د) $\begin{cases} y^3 = 2 - 1 - 1 = -1 \\ x=2 \end{cases} \rightarrow y^3 = -1 \rightarrow y = \sqrt[3]{-1} = -1$

الف) $\tan \frac{\pi}{3} = \rightarrow \tan = \frac{\sin}{\cos} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

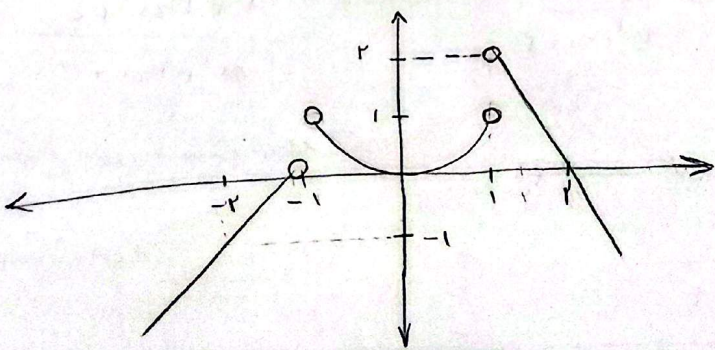
ب) $\cot \frac{\sqrt{3}\pi}{4} = \rightarrow \cot = \frac{\cos}{\sin} = \frac{-\frac{\sqrt{2}}{2}}{-\frac{1}{2}} = \sqrt{2}$

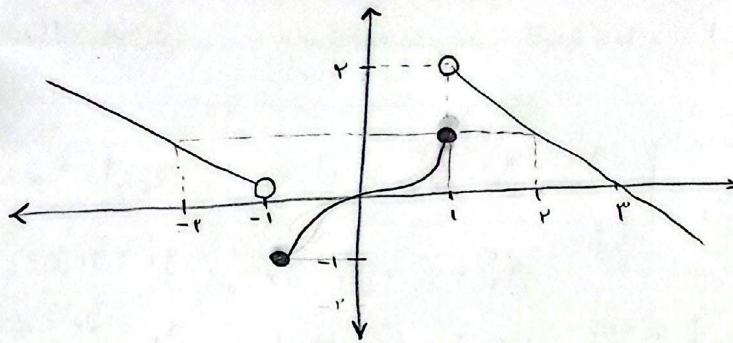
ج) $\tan 150^\circ = \rightarrow \tan = \frac{\sin}{\cos} = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$

د) $\cot 110^\circ = \rightarrow \cot = \frac{\cos}{\sin} = \frac{-1}{0} \rightarrow \text{تangent نه ده}$

الف) $\frac{5\pi}{4}, \frac{\pi}{4}$

ب) $\frac{\pi}{4}, \frac{5\pi}{4}$





$$(n-2)(n-3)(n-4)$$

2	3	2	3
-	+	-	+

ب) $(x-2)(x-3)^2(x-4)$

$\begin{array}{c|c|c|c} x & x & x & \\ \hline + & - & - & + \end{array}$

$$\text{الف) } \frac{(n-2)(n-4)}{n-3}$$

$$\rightarrow \frac{(n-2)(n-1)}{(n-3)^2}$$

$$\frac{(n-2)(n-1)}{n-3} \text{ الف)}$$

A hand-drawn root locus plot on a horizontal axis. There are three poles marked with 'x' at positions labeled 1, 2, and 3 from left to right. There is one zero marked with 'o' at a position to the right of pole 3. The segments of the root locus are marked with '+' and '-' signs: '+' between pole 1 and pole 2, '-' between pole 2 and pole 3, '-' between pole 3 and the zero, and '+' to the right of the zero.

$$\text{ب) } \frac{(n-2)(n-1)}{(n-1)(n-3)}$$

$$\text{الف) } \frac{n^2(n-1)(n+1)}{n^2+n+1} = \frac{n^2-n^2}{n^2+n+1}$$

مقدح ممراره مسته م م م

$\Delta = 1/2 \sqrt{1 - \epsilon^2}$

$$\underline{\underline{1)}} \quad \frac{n^2 + n + 1}{n^2 + n + 1}$$

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