

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

ب)
$$\begin{cases} y_1^3 + y_1 = 2x_1^2 - 1 \\ y_2^3 + y_2 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1=x_2} y_1^3 + y_1 = y_2^3 + y_2$$

$$y_2^3 + y_2 = 2x_2^2 - 1 \Rightarrow y_1^3 + y_1 = 2x_2^2 - 1 \Rightarrow y_1^3 + y_1 = y_2^3 + y_2$$

 تابع
 دالة - بر روی محور
 $y + y =$

الف) $y = x^2 - 1$ ✓

ب) $|y| + xy = x^2 + 1 \rightarrow x=0 \quad |y|=1 \rightarrow y = \pm 1$ ✓

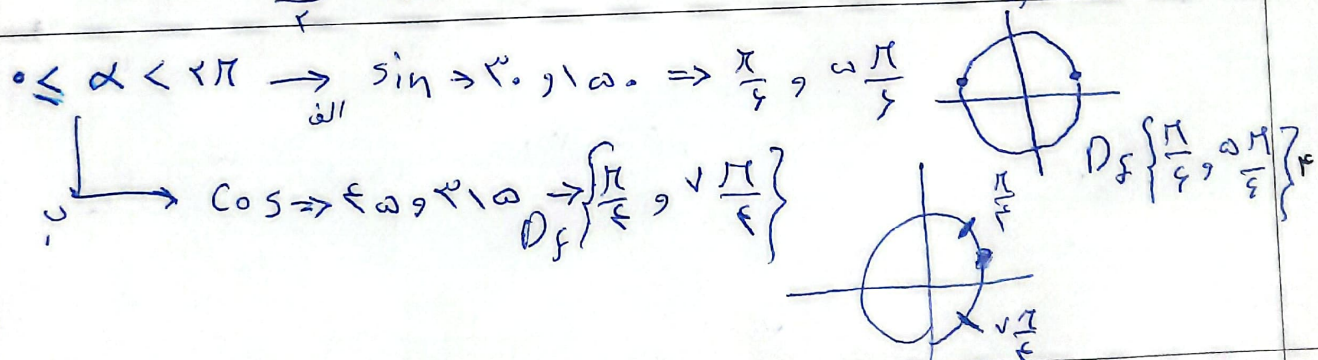
ج)
$$\begin{cases} y_1^3 + x_1^2 = 2x_1 - 1 \\ y_2^3 + x_2^2 = 2x_2 - 1 \end{cases} \xrightarrow{x_1=x_2} y_1^3 = y_2^3 \rightarrow y_1 = y_2 \checkmark$$

$$\sqrt[3]{y_1} + \sqrt[3]{x_1} = 2 \xrightarrow{x_1=x_2} \sqrt[3]{y_2} = \sqrt[3]{x_1} \Rightarrow y_1 = y_2 \checkmark$$

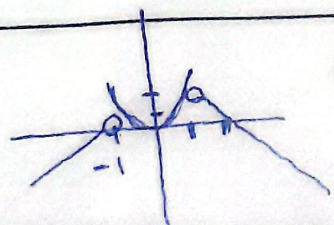
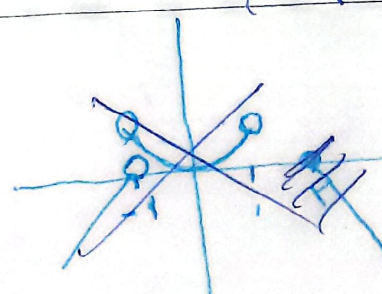
الف)
$$\frac{\pi}{3} \frac{\sin}{\cos} = \frac{\sqrt{3}}{\frac{1}{\sqrt{3}}} = \sqrt{3} \quad \frac{\pi}{6} \frac{\cos}{\sin} = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \sqrt{3}$$

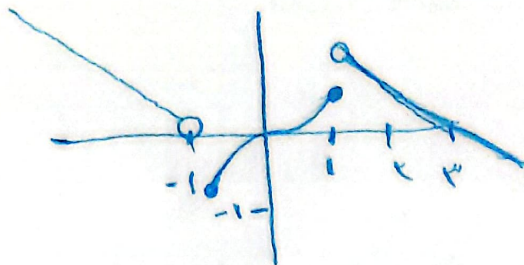
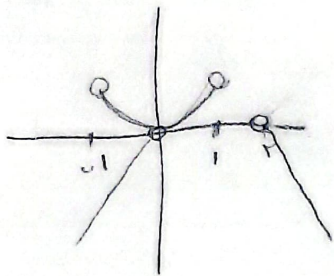
ب)
$$33 \cdot \frac{\sin}{\cos} = \frac{-\frac{1}{\sqrt{3}}}{\frac{\sqrt{3}}{2}} = \frac{-1}{\sqrt{3}} = \frac{\sqrt{3}}{-3} = \frac{-\sqrt{3}}{3} \quad \frac{\cos}{\sin} = \frac{-1}{0}$$

 تعریف نشده
 تقاطع



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





$$y = (x-2)(x-3)(x-4) \quad \begin{array}{c} x & x & x \\ -\phi & +\phi & -\phi & + \end{array}$$

$$y = (x-2)(x-3)(x-4) \quad \begin{array}{c} x & x & x \\ +\phi & -\phi & -\phi & + \end{array}$$

$$y_2 = \frac{(x-2)(x-4)}{x-3} \rightarrow \begin{array}{c} x & x & x \\ -\phi & +\phi & -\phi & + \end{array} \rightarrow \begin{array}{c} x & x & x \\ -\phi & +\phi & -\phi & + \end{array}$$

$$y_2 = \frac{(x-2)(x-4)}{(x-3)^2} \rightarrow \begin{array}{c} x & x & x \\ +\phi & -\phi & -\phi & + \end{array}$$

$$y = \frac{x^2 - 3x + 2}{x^2 - 5x + 3} \rightarrow \text{مقسوم عليه} = 0 \rightarrow x - 1 \text{ قسمة } x^2 - 5x + 3 \Rightarrow \frac{x^2 - 3x + 2}{x-1}$$

$$y = \frac{x^2 - 3x + 2}{x^2 - 5x + 3} \rightarrow \frac{(x-1)(x-2)}{(x-1)(x-3)} = \frac{x-2}{x-3} \quad \begin{array}{c} x & x & x \\ +\phi & -\phi & -\phi & + \end{array}$$

$$\text{الف) } y = \frac{x^2 - 2x}{x^2 + x + 2} \rightarrow \frac{x(x-2)}{(x+2)(x+1)} \rightarrow \Delta = \sqrt{1-1} \rightarrow \text{مميز}$$

$$\text{ب) } \frac{x^2 + 3x + 2}{x^2 - 2x + 3} \rightarrow \Delta = \sqrt{9-12} \rightarrow \text{مميز} \Rightarrow \text{حلين حقيقيين}$$

$$\begin{array}{c} x & x & x \\ -\phi & +\phi & -\phi & + \end{array} \quad \text{الف 9}$$