

$$y_1^3 = 2x_1^2 - 1 \rightarrow y_1^3 = 2x_1^2 - 1 \xrightarrow{x_1 = x_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2 \text{ است}$$

$$y_1^3 = 2x_1^2 - 1$$

$$- y_1^3 + y_1^3 = 2x_1^2 - 1 \xrightarrow{x_1 = x_2} y_1^3 - y_2^3 = y_1^3 - y_2^3 + y_1 y_2 (y_1 + y_2) = 0$$

$$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) = 0 \Rightarrow y_1 = y_2 \text{ است}$$

$$y = x^2 - 1 \rightarrow y_1 = x_1^2 - 1 \xrightarrow{x_1 = x_2} y_1 = y_2$$

$$\sqrt{2x^2 - 1} < 0 \Rightarrow x_1 = x_2 \text{ است}$$

$$|y_1| + x_1 y_2 = x_1^2 + 1 \xrightarrow{x_2 = 0} |y_1| < 1 \Rightarrow y_2 = \pm 1 \text{ است}$$

$$E) y^3 = x^2 - 1 \xrightarrow{x_1 = x_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2 \text{ است}$$

$$\sqrt{y_1} + \sqrt{y_2} = \sqrt{y_1} + \sqrt{y_2} = 1 \xrightarrow{x_1 = x_2} y_1 = y_2 \text{ است}$$

$$\tan \frac{\pi}{4} = \frac{1}{1} = 1$$

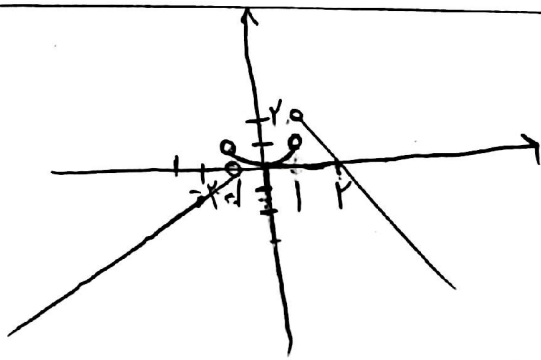
$$\tan 45^\circ = -\frac{\sqrt{3}}{3}$$

$$\cot \frac{\sqrt{\pi}}{4} = \frac{\sqrt{3}}{3}$$

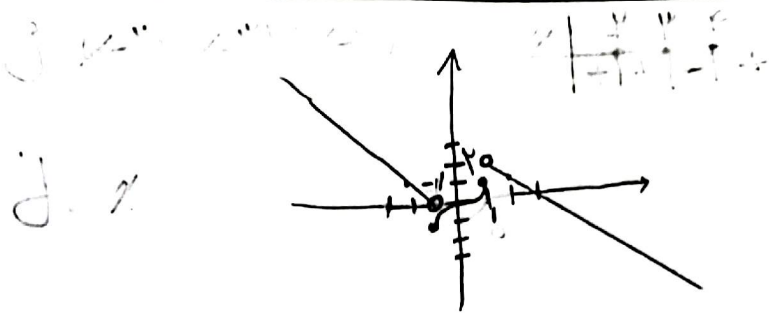
$$\cot 110^\circ = -1$$

$$\sin \alpha = \frac{1}{2} \rightarrow \alpha = 30^\circ, 150^\circ \Rightarrow \frac{\pi}{6}, \frac{5\pi}{6}$$

$$\cos \alpha = \frac{\sqrt{2}}{2} \rightarrow \alpha = 45^\circ, 135^\circ \Rightarrow \frac{\pi}{4}, \frac{3\pi}{4}$$



$$f(x) = \begin{cases} -2x + 5 & x > 1 \\ x^2 - 4 & -1 < x < 1 \\ x + 1 & x < -1 \end{cases}$$



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

$$y = (x-1)(x-3)(x-5) \quad \begin{array}{c|ccc} x & 1 & 3 & 5 \\ \hline & - & + & - \end{array} \quad D_f = \mathbb{R}$$

$$f = (x-1)(x-3)^2(x-5) \quad \begin{array}{c|ccc} x & 1 & 3 & 5 \\ \hline & + & - & + \end{array} \quad D_f = \mathbb{R}$$

$$y = \frac{(x-1)(x-5)}{x-3} \quad \begin{array}{c|ccc} x & 1 & 3 & 5 \\ \hline & - & + & - \end{array} \quad D_f = \mathbb{R} - \{3\}$$

$$f = \frac{(x-1)(x-5)}{(x-3)^2} \quad \begin{array}{c|ccc} x & 1 & 3 & 5 \\ \hline & + & - & + \end{array} \quad D_f = \mathbb{R} - \{3\}$$

$$y = \frac{x^2 - 3x + 2}{x^2 - 5x + 6} = \frac{(x-1)(x-2)}{(x-2)(x-3)} \quad \begin{array}{c|ccc} x & 1 & 2 & 3 \\ \hline & + & - & + \end{array} \quad D_f = \mathbb{R} - \{2, 3\}$$

$$f = \frac{x^2 - 3x + 2}{x - 2} = \frac{(x-1)(x-2)}{x-2} \quad \begin{array}{c|ccc} x & 1 & 2 & 3 \\ \hline & - & + & - \end{array} \quad D_f = \mathbb{R} - \{2\}$$

$$y = \frac{x^2 - x}{x^2 + x + 1} = \frac{x(x-1)}{x^2 + x + 1} = \frac{x(x+1)(x-1)}{x^2 + x + 1} \quad \begin{array}{c|ccc} x & -1 & 0 & 1 \\ \hline & + & - & + \end{array} \quad D_f = \mathbb{R}$$

$$f = \frac{x^2 + 3x + 2}{x^2 + x + 1} \quad \Delta < 0 \Rightarrow D_f = \mathbb{R}, \quad \lim_{x \rightarrow \infty} f = 1$$