

الف) $y^3 = 2x^2 - 1$ $\rightarrow y_1^3 = 2x_1^2 - 1$ $\rightarrow y_1 = y_2 \rightarrow y_1 = y_2$
 تابع است ✓
 ب) $y^3 + y = 2x^2 - 1$ $\rightarrow y_1^3 + y_1 = 2x_1^2 - 1$ $\rightarrow y_1 = y_2 \rightarrow y_1 = y_2$
 ادامه

الف) $y = x^2 - 1$ $\rightarrow y = x^2 - 1$ $\rightarrow y = x^2 - 1$
 ب) $|y| + xy = x^2 + 1$ $\rightarrow y = \pm 1$

ج) $y^3 + x^3 = 2x - 1$ $\rightarrow y_1^3 + x_1^3 = 2x_1 - 1$ $\rightarrow y_1 = y_2$
 د) $\sqrt[3]{y} + \sqrt[3]{x} = \sqrt[3]{2x - 1}$ $\rightarrow y_1 = y_2$

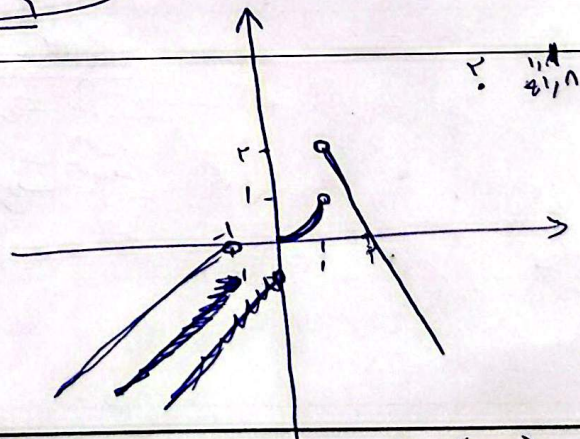
الف) $\tan \frac{\pi}{4} = \frac{S \frac{\pi}{4}}{C \frac{\pi}{4}} = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = 1$ $\rightarrow \cot \frac{\pi}{4} = \frac{1}{1} = 1$

ج) $\tan 330^\circ = \frac{S 330^\circ}{C 330^\circ} = \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\sqrt{3}$ $\rightarrow \cot 150^\circ = -\frac{1}{\sqrt{3}}$

الف) $S \alpha = \frac{1}{4}$ $\alpha = 30^\circ, 150^\circ$
 $L > \frac{\pi}{4}, \frac{5\pi}{4}$

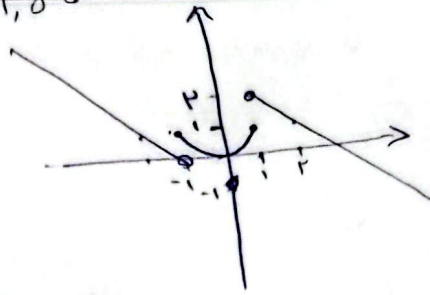
ب) $C \alpha = \frac{\sqrt{2}}{2}$ $\alpha = 45^\circ, 315^\circ$
 $L > \frac{\pi}{4}, \frac{7\pi}{4}$

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



$y_1 - y_2 = 0 \rightarrow y_1 = y_2$
 $y_1^3 + y_1 y_2 + y_2^3 = 0 \rightarrow y_1^3 + y_1 y_2 + y_2^3 = 0$
 $\Delta = y_1^2 - 4(y_2^2 + 1) = -4y_2^2 - 4$

$$f(x) = \begin{cases} -x+3 & x > 1 \\ x^2 & -1 \leq x \leq 1 \\ -x-1 & x < -1 \end{cases}$$



الف) $y = (x-2)(x-3)(x-4)$

2	3	4
-	+	-
+	-	+

ب) $y = (x-2)(x-3)(x-4)$

2	3*	4
+	-	-
-	+	+

الف) $y = \frac{(x-2)(x-4)}{x-3}$

2	3	4
-	+	-
+	+	+

ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$

2	3*	4
+	-	-
-	+	+

الف) $y = \frac{(x-1)(x-2)}{x^2-3x+2}$

1	2	3
-	+	-
+	+	+

ب) $y = \frac{(x-1)(x-2)}{x^2-3x+2}$

1*	2	3
+	-	-
-	+	+

الف) $y = \frac{x^2 - x^2}{x^2 + x + 2} = \frac{x(x-1)(x+1)}{x^2 + x + 2}$

-1	0	1
-	+	-
+	+	+

ب) $y = \frac{x^2 + 3x + 2}{x^2 + 2x + 2}$