

الف) تابع است $\Rightarrow y_1 = y_2 \Rightarrow y_1^3 = y_2^3 \Rightarrow y_1^3 = y_2^3 \Rightarrow y_1^3 = y_2^3 \Rightarrow y_1^3 = y_2^3$
 $\Rightarrow y_1^3 = y_2^3 \Rightarrow y_1^3 = y_2^3 \Rightarrow y_1^3 = y_2^3 \Rightarrow y_1^3 = y_2^3$

ب) $\Rightarrow y_1^3 + y_2^3 = 3x^2 - 1 \Rightarrow y_1^3 + y_2^3 = 3x^2 - 1 \Rightarrow y_1^3 + y_2^3 = 3x^2 - 1 \Rightarrow y_1^3 + y_2^3 = 3x^2 - 1$
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الف) $\tan \frac{\pi}{3} = \tan y \Rightarrow \frac{\sin y}{\cos y} = \frac{\sqrt{3}}{1} \Rightarrow \frac{\sqrt{3}}{1} = \sqrt{3}$

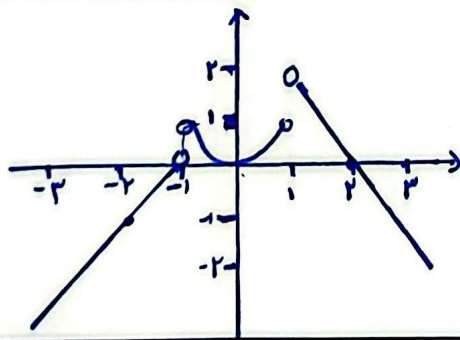
ب) $\cot \frac{\sqrt{\pi}}{y} = \cot 21.0^\circ \Rightarrow \frac{\cos y}{\sin y} = \frac{\cos 21.0^\circ}{\sin 21.0^\circ} \Rightarrow \frac{\cos y}{\sin y} = \frac{\cos 21.0^\circ}{\sin 21.0^\circ}$
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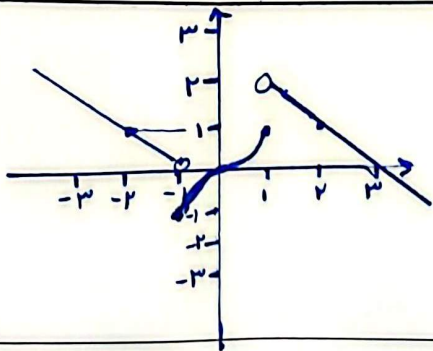
2) $\tan 33.0^\circ = \frac{\sin 33.0^\circ}{\cos 33.0^\circ} = \frac{\frac{1}{2}}{\frac{\sqrt{3}}{2}} = \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}}$

3) $\cot 11.0^\circ = \frac{\cos 11.0^\circ}{\sin 11.0^\circ} = \frac{1}{\frac{1}{2}} = 2 \Rightarrow$ تعریف نشده

الف) $\sin \alpha = \frac{1}{2} \Rightarrow \sin \alpha = \frac{1}{2} \Rightarrow \alpha = \left\{ \frac{\pi}{6}, \frac{5\pi}{6} \right\}$ یا $\alpha = \{ 30^\circ, 150^\circ \}$

ب) $\cos \alpha = \frac{\sqrt{2}}{2} \Rightarrow \cos \alpha = \frac{\sqrt{2}}{2} \Rightarrow \alpha = \left\{ \frac{\pi}{4}, \frac{7\pi}{4} \right\}$ یا $\alpha = \{ 45^\circ, 315^\circ \}$





الف) $(x-2)(x-3)(x-4) \Rightarrow \frac{x}{f(x)} \begin{array}{c|ccc} & 2 & 3 & 4 \\ \hline & - & + & - & + \end{array} \Rightarrow [2, 3] \cup [4, +\infty)$

ب) $(x-2)(x-3)^2(x-4) \Rightarrow \frac{x}{f(x)} \begin{array}{c|ccc} & 2 & 3^* & 4 \\ \hline & + & - & - & + \end{array} \Rightarrow (-\infty, 2] \cup [3, 4, +\infty)$

الف) $\frac{(x-2)(x-3)}{x-3} \Rightarrow \frac{x}{f(x)} \begin{array}{c|ccc} & 2 & 3^* & 4 \\ \hline & - & + & - & + \end{array} \Rightarrow [2, 3] \cup [4, +\infty)$

ب) $\frac{(x-2)(x-3)}{(x-3)^2} \Rightarrow \frac{x}{f(x)} \begin{array}{c|ccc} & 2 & 3^* & 4 \\ \hline & + & - & - & + \end{array} \Rightarrow (-\infty, 2] \cup [3, +\infty)$
تغییر نمایی

الف) $\frac{x^3 - 3x^2 + 2}{x-3} \xrightarrow{\Delta \neq 0} \frac{x^3 - 3x^2 + 2}{x-3} \Rightarrow \frac{(x-1)(x^2 + x - 2)}{x-3} \Rightarrow \frac{(x-1)(x+2)(x-1)}{x-3}$
ب) $\frac{x^3 - 3x^2 + 2}{x^2 - 3x + 2} = \frac{(x-1)(x-2)}{(x-2)(x-1)} = 1$
تغییر نمایی: $\frac{x}{f(x)} \begin{array}{c|ccc} & 2 & 3^* & 4 \\ \hline & + & - & - & + \end{array} \Rightarrow (-\infty, 2] \cup [3, +\infty)$

الف) $\frac{x^3 - x^2}{x^2 + x + 2} = \frac{x^2(x-1)(x+1)}{x^2 + x + 2} \Rightarrow \frac{x}{f(x)} \begin{array}{c|ccc} & -1 & 0 & 1 \\ \hline & + & + & - & + \end{array} \Rightarrow [-1, 0] \cup [1, +\infty)$
 $\Delta < 0$ ریشه ندارد

ب) $\frac{x^3 + 3x^2 + 2}{x^2 + 3x + 2} = \frac{+}{+} \Rightarrow \frac{x}{f(x)} \begin{array}{c|ccc} & -\infty & & +\infty \\ \hline & + & & + \end{array}$
 $\Delta < 0$