

النیا جاتی ہے
- تابع است ✓

$$\text{الف) } g^3 = 2x^2 - 1 \Rightarrow \begin{cases} g_1^3 = 2x_1^2 - 1 \\ g_2^3 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1 = x_2} g_1^3 = g_2^3 \rightarrow \boxed{g_1 = g_2}$$

ب) $g^3 + g = 3x^2 - 1 \Rightarrow \begin{cases} g_1^3 + g_1 = 3x_1^2 - 1 \\ g_2^3 + g_2 = 3x_2^2 - 1 \end{cases} \xrightarrow{x_1 = x_2} g_1^3 + g_1 = g_2^3 + g_2 \rightarrow g_1^3 - g_2^3 + g_1 - g_2 = 0$
 اتحاد
 $(g_1 - g_2)(g_1^2 + g_1 g_2 + g_2^2) + (g_1 - g_2) = 0$
 $(g_1 - g_2)(g_1^2 + g_1 g_2 + g_2^2 + 1) = 0$
 $g_1 - g_2 = 0 \rightarrow \boxed{g_1 = g_2}$
 $g_1^2 + g_1 g_2 + g_2^2 + 1 = 0 \times$
 $-g_2 \pm \sqrt{g_2^2 - (4 \times (g_2^2 + 1))}$
 $\frac{g_2^2 - 4g_2^2 - 4}{2} = -g_2 \pm \sqrt{-3g_2^2 - 4}$
 $= -g_2 \pm \sqrt{-3g_2^2 - 4}$
 $\frac{-g_2 \pm \sqrt{-3g_2^2 - 4}}{-g_2 \pm \sqrt{-3g_2^2 - 4}} = -g_2 \pm \sqrt{-3g_2^2 - 4}$
 چون دلنا همیشگی این رابطه مرکز برقرار نیست و تابع است ✓
 تابع است ✓
 شکل کلی $= ax^2 + bx + c$
 اتحاد
 تابع است ✓

الف) $g = x^2 - 1 \Rightarrow \begin{cases} g_1 = x_1^2 - 1 \\ g_2 = x_2^2 - 1 \end{cases} \xrightarrow{x_1 = x_2} \boxed{g_1 = g_2}$ تابع ✓

ب) $|g| + xg = x^2 + 1 \xrightarrow{x=0} |g| = 0 + 1 \rightarrow \begin{cases} g = 1 \\ g = -1 \end{cases}$ تابع نیست ✗

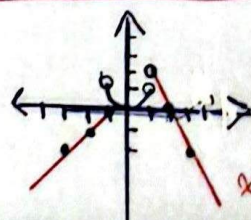
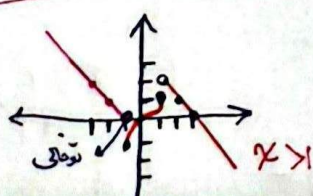
ج) $g^3 + x^3 = 2x - 1 \Rightarrow \begin{cases} g_1^3 = 2x_1 - x_1^3 - 1 \\ g_2^3 = 2x_2 - x_2^3 - 1 \end{cases} \xrightarrow{x_1 = x_2} g_1^3 = g_2^3 \rightarrow \boxed{g_1 = g_2}$ تابع ✓
 $g^3 = 2x - x^3 - 1$

د) $\sqrt[3]{g} + \sqrt[3]{x} = 2 \Rightarrow \begin{cases} \sqrt[3]{g_1} = 2 - \sqrt[3]{x_1} \\ \sqrt[3]{g_2} = 2 - \sqrt[3]{x_2} \end{cases} \xrightarrow{x_1 = x_2} \sqrt[3]{g_1} = \sqrt[3]{g_2} \rightarrow \boxed{g_1 = g_2}$ تابع ✓
 $\sqrt[3]{g} = 2 - \sqrt[3]{x}$

الف) $\tan \frac{\pi}{4} = \frac{\sin \frac{\pi}{4}}{\cos \frac{\pi}{4}} = \frac{\frac{\sqrt{2}}{2}}{\frac{\sqrt{2}}{2}} = 1$
 ب) $\cos + \frac{\sqrt{2}}{2} = \frac{-\sqrt{2}}{2} = \sqrt{2}$
 $\frac{\sin}{\cos} \Rightarrow \frac{-\frac{1}{\sqrt{2}}}{\frac{1}{\sqrt{2}}} = -1$

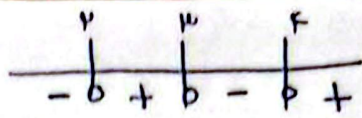
د) $\cos 180^\circ = \frac{-1}{1} = -1$
 نقشه

الف) $\sin \alpha = \frac{1}{\sqrt{2}} \rightarrow \begin{cases} \frac{\pi}{4} \\ \frac{3\pi}{4} \end{cases} \rightarrow \{2k\pi \pm \frac{\pi}{4}\}$
 ب) $\cos \alpha = \frac{\sqrt{2}}{2} \rightarrow \begin{cases} \frac{\pi}{4} \\ \frac{7\pi}{4} \end{cases} \rightarrow \{2k\pi \pm \frac{\pi}{4}\}$

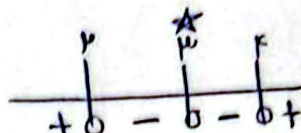


-٧ النماذج

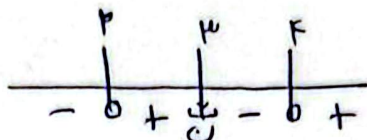
الف) $g = \frac{(x-2)^2(x-4)}{(x-2)(x-4)}$



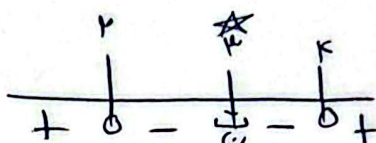
ب) $g = \frac{(x-2)(x-4)^2}{(x-2)(x-4)}$



الف) $g = \frac{(x-2)^2(x-4)}{(x-2)(x-4)}$

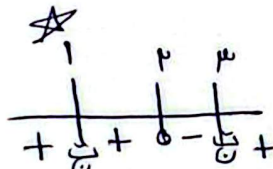


ب) $g = \frac{(x-2)(x-4)^2}{(x-2)(x-4)}$

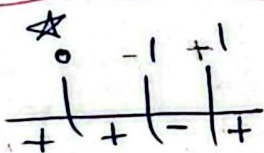


الف) $g = \frac{x^2 - 3x + 2}{x - 4} = \frac{(x-1)(x-2)}{x-4}$ تجزئة كسور $\frac{(x-1)(x-2)}{x-4}$

ب) $g = \frac{x^2 - 3x + 2}{x^2 - 6x + 4} = \frac{(x-1)(x-2)}{(x-1)(x-4)}$



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



ب) $g = \frac{x^2 + 3x + 4}{x^2 + 2x + 4} = \frac{x^2 + 3x + 4}{x^2 + 2x + 4}$