

الف) $\begin{cases} g_1^3 = 2x_1^2 - 1 \\ g_2^3 = 2x_2^2 - 1 \end{cases} \Rightarrow x_1 = x_2 \Rightarrow g_1 = g_2$ تابع ✓

ب) $\begin{cases} g_1^3 + g_1 = 2x_1^2 - 1 \\ g_2^3 + g_2 = 2x_2^2 - 1 \end{cases} \Rightarrow x_1 = x_2 \Rightarrow g_1 = g_2$ تابع ✓
 $(g_1 - g_2)(g_1^2 + g_1g_2 + g_2^2) + (g_1 - g_2) = 0$
 $(g_1 - g_2)(g_1^2 + g_1g_2 + g_2^2 + 1) = 0$

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

ب) $x = 0, |g| = 1, g = \pm 1$ تابع ✓

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

د) $x = 0, \sqrt[3]{g} = 2, g = 8$ تابع ✓

الف) $\frac{\sin}{\cos} = \frac{\sqrt{3}}{\frac{1}{2}} = \sqrt{3}$

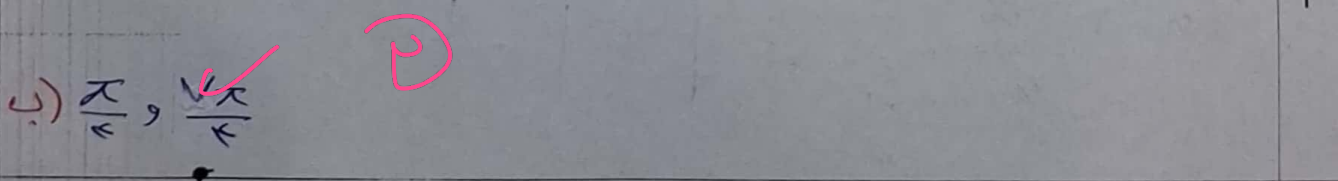
ب) $\frac{\cos}{\sin} = \frac{-\frac{\sqrt{3}}{2}}{\frac{1}{2}} = -\sqrt{3}$

ج) $\frac{\sin}{\cos} = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$

د) $\frac{\cos}{\sin} = \frac{-1}{0}$ من

الف) $\alpha = \frac{\pi}{6}, \frac{5\pi}{6}$

ب) $\frac{\pi}{6}, \frac{5\pi}{6}$



$y = x^2, -1 < x < 1$ and $y = -2x + 2, x > 1$

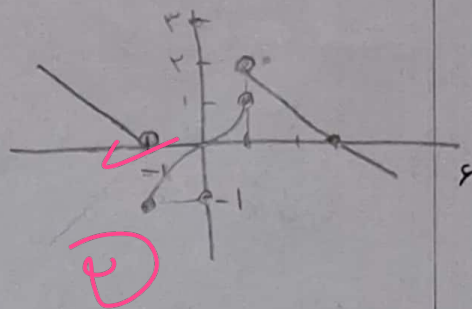
x	y
0	0
1	1
2	0
3	-2

$y = x + 1, x < -1$

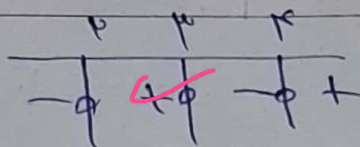
$$y = -x + 2 \quad x > 1$$

$$y = x^2 \quad \begin{array}{c|c} x & y \\ -1 & -1 \\ 1 & 1 \end{array} \quad -1 \leq x \leq 1$$

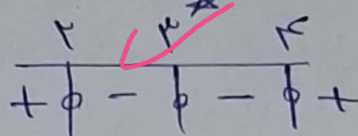
$$y = -x - 1 \quad x < -1$$



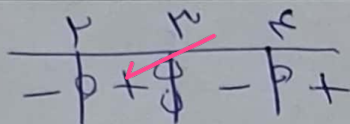
(الف) $x=2, x=3, x=4$



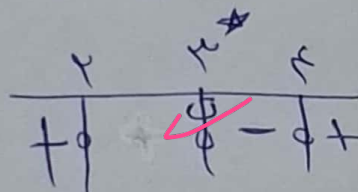
(ب) $x=2, x=3^*, x=4$
 $x=2, x=3$



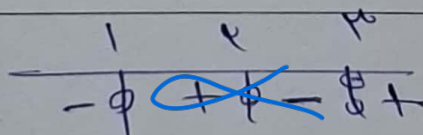
(الف) $x=2, x=4$
 $x=3$



(ب) $x=2, x=4$
 $x=3^*, x=4$

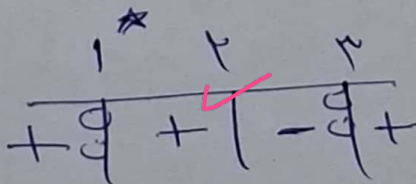


(الف) $\frac{(x-2)(x-1)}{x-3} \rightarrow 3$



تجزیه عنوان!

(ب) $\frac{(x-2)(x-1)}{(x-3)(x-1)} \rightarrow 1$

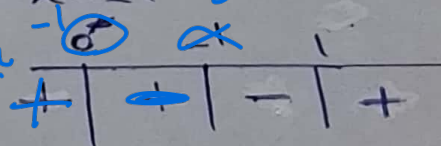


1, 20

(الف) $\frac{x^2(x^2-1)}{x^2+x+2} \quad x^2=0 \quad x^2=1 \quad x=\pm 1$

$$\Delta = 1^2 - 4 \cdot 1 \cdot 2 = 1 - 8 = -7$$

باید ریشه ها را به ترتیب بنویس!



1, 0

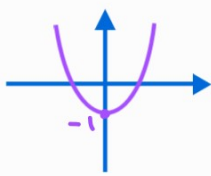
(ب) $x^2 + 3x + 2 \rightarrow \Delta = 9 - 12 = -1$

$x^2 + 2x + 3 \rightarrow \Delta = 4 - 12 = -8$

$$\frac{x^2 + 3x + 2}{x^2 + 2x + 3} > 0$$

همیشه مثبت است

الف ۲- رسم کنید



خفاقی صند با آن را قطع می کند پس تا بویست ✓ $y = x^2 - 1$

ج ۲- $y^3 + x^3 = 2x - 1$ تعریف میانی

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

$$\Rightarrow x_1^3 + 2x_1 - 1 = -x_2^3 + 2x_2 - 1$$

تا بویست ✓ $y_1 = y_2 \rightarrow y_1 = y_2$

$$\sqrt[3]{x_1} = 2 - \sqrt[3]{y_1}$$

د ۲- $\sqrt[3]{y} + \sqrt[3]{x} = 2$ تعریف میانی

$$\begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x_1} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{x_2} = 2 \end{cases}$$

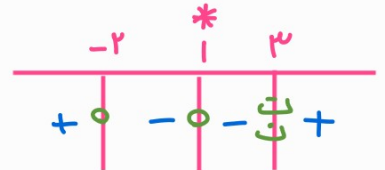
تا بویست ✓ $2 - \sqrt[3]{y_1} = 2 - \sqrt[3]{y_2} \rightarrow$

$$\sqrt[3]{x_2} = 2 - \sqrt[3]{y_2}$$

تا بویست ✓ $y_1 = y_2 \rightarrow y_1 = y_2$

الف ۹- $y = \frac{x^3 - 3x + 2}{x - 3}$

مجموعه های صفرات پس بر $x - 1$ تقسیم می یابیم!



ب ۱۰- $y = \frac{x^2 + 3x + 4}{x^2 + 2x + 3}$ $\rightarrow \Delta = (3)^2 - 4(4) = 9 - 16 < 0$
 $a = 1 > 0 \rightarrow$ همواره مثبت

$\Delta = (2)^2 - 4(3) = 4 - 12 < 0$
 $a = 1 > 0 \rightarrow$ همواره مثبت

عبارت همواره مثبت است!