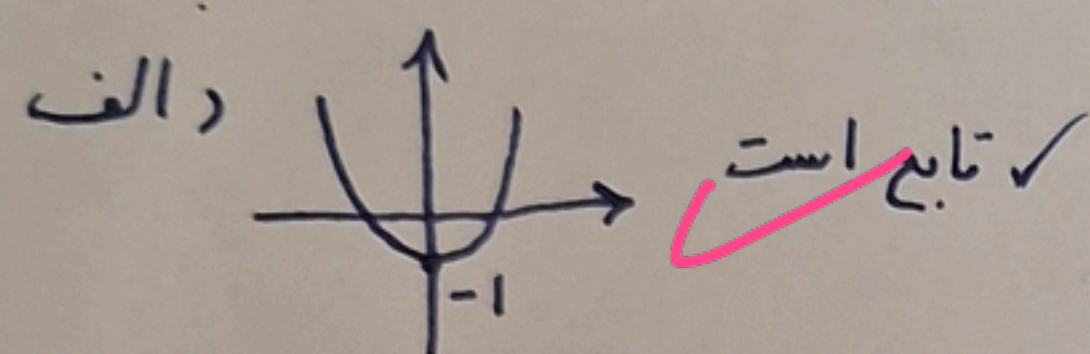


الف) $\begin{cases} y_1^3 = 2x_1^2 - 1 \\ y_2^3 = 2x_2^2 - 1 \end{cases} \xrightarrow{x_1=x_2} y_1^3 = y_2^3 \rightarrow \boxed{y_1 = y_2} \checkmark$ هر دو تابع اند

ب) $\begin{cases} y_1^3 + y_1 = 3x^2 - 1 \\ y_2^3 + y_2 = 3x^2 - 1 \end{cases} \xrightarrow{x_1=x_2} y_1^3 + y_1 = y_2^3 + y_2 \rightarrow y_1^3 - y_2^3 + y_1 - y_2 = 0 \rightarrow$
 $(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2) = 0 \rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0 \rightarrow \boxed{y_1 = y_2}$



مثال نقی

ب) $x=0 \rightarrow |y|+0=0+1$

$|y|=1 \rightarrow y=\pm 1$ تابع نیست $\times$

ج) $\begin{cases} y_1^3 = -x_1^3 + 2x_1 \\ y_2^3 = -x_2^3 + 2x_2 \end{cases} \xrightarrow{x_1=y_1} y_1^3 = y_2^3$ ریشه ندارد $\Delta < 1$

$\boxed{y_1 = y_2}$ تابع است $\checkmark$

د) $\begin{cases} \sqrt[3]{y_1} = \sqrt[3]{x_1} + 1 \\ \sqrt[3]{y_2} = \sqrt[3]{x_2} + 1 \end{cases} \xrightarrow{x_1=x_2} \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow \boxed{y_1 = y_2} \checkmark$ هست

الف = $\frac{\sqrt[3]{3}}{\frac{1}{2}} = \sqrt[3]{3}$

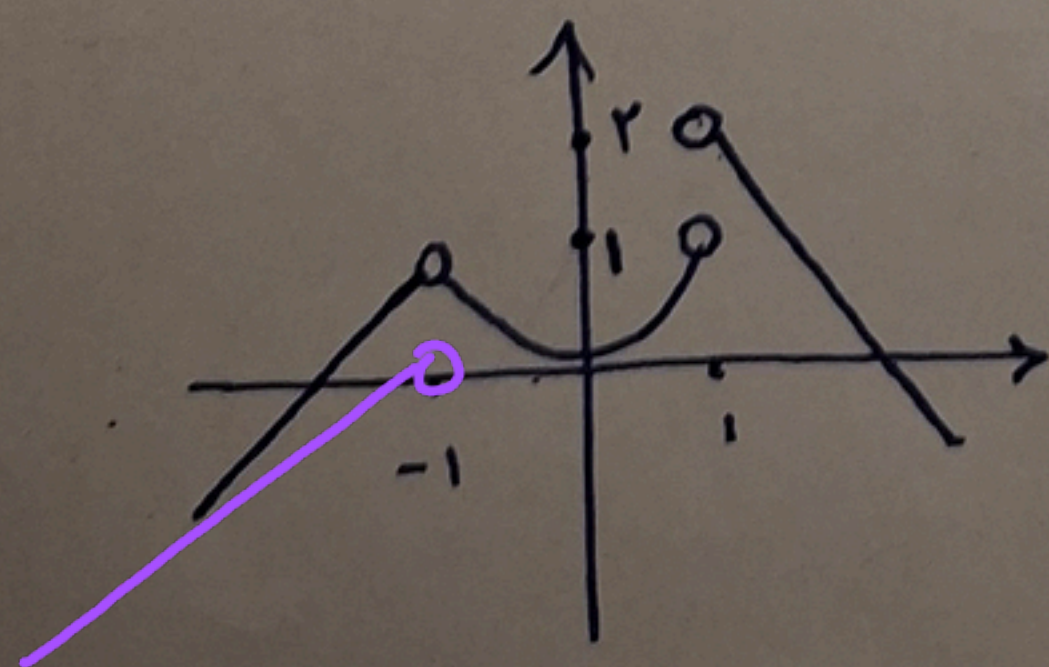
ب = $\frac{-\frac{\sqrt[3]{3}}{2}}{-\frac{1}{2}} = \sqrt[3]{3}$

ج) $\frac{-\frac{1}{2}}{\sqrt[3]{\frac{3}{2}}} = -\frac{1}{\sqrt[3]{3}}$

د) $\frac{-1}{0} = \text{تعریف نشده}$

الف) $30^\circ = \frac{\pi}{6}$, $150^\circ = \frac{5\pi}{6}$

ب) $45^\circ = \frac{\pi}{4}$, $315^\circ = \frac{7\pi}{4}$



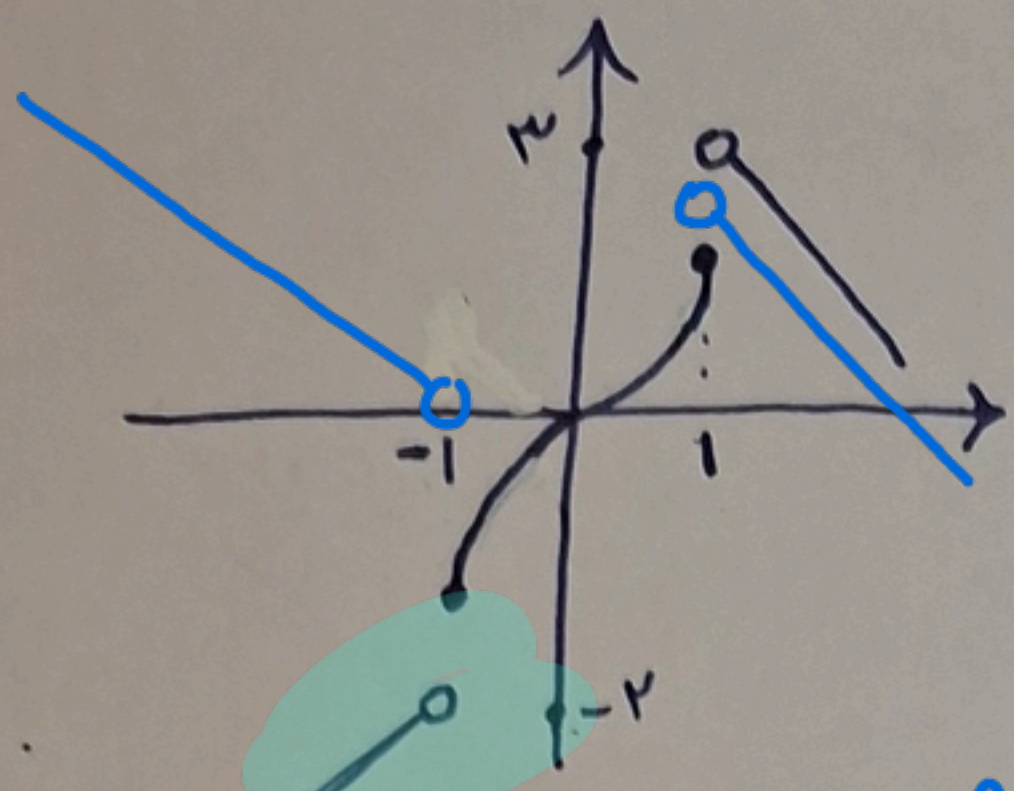
$\begin{cases} -2x+4 & x > 1 \\ x^2 & -1 < x < 1 \\ x+1 & x < -1 \end{cases} \Rightarrow y = -2(1)+4=2$

$x = -1 \rightarrow -1+1=0$

تقداری توخالی است!

۱,۷۵

$$y = -1 + x^2 \quad (1, 3)$$



صورت سوال را
اعتبار داشته

$$-x+3$$

$$x > 1$$

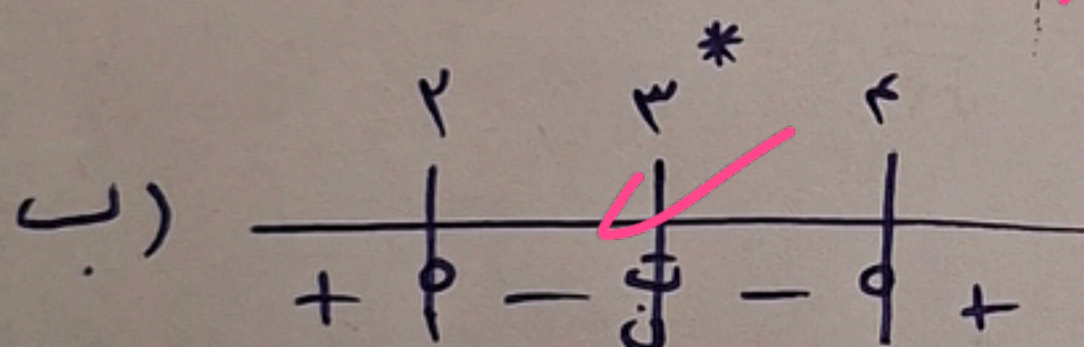
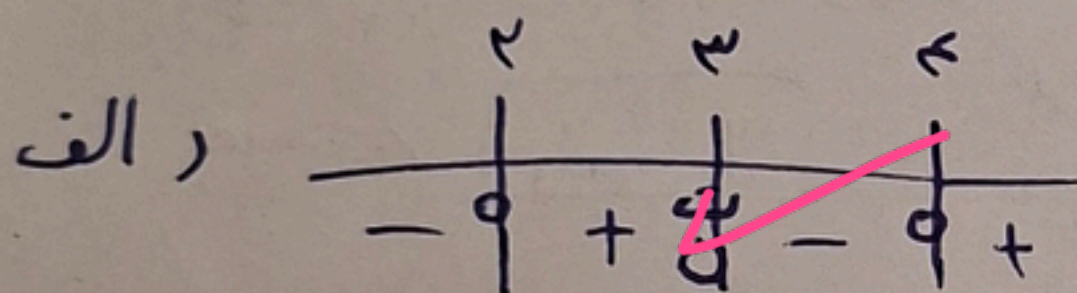
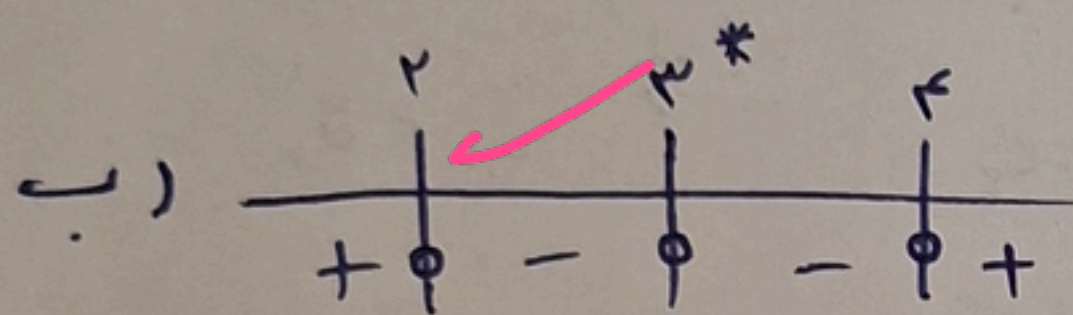
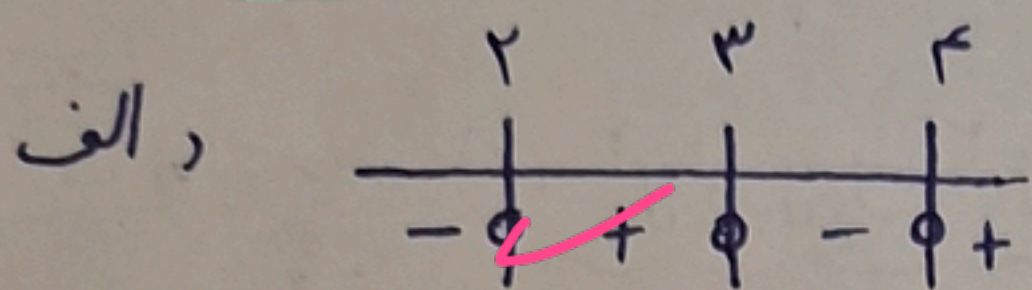
$$-1 \leq x \leq 1$$

$$-x-1$$

$$x < -1$$

$$y = (-1) - 1 = -2 \quad (-1, -2)$$

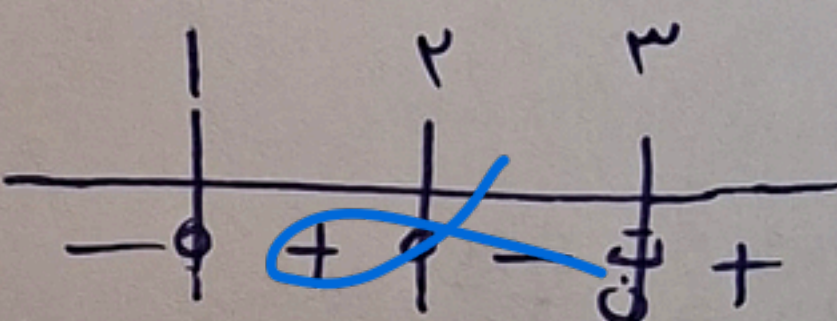
$$-(-1) - 1 = 1 - 1 = 0$$



الف

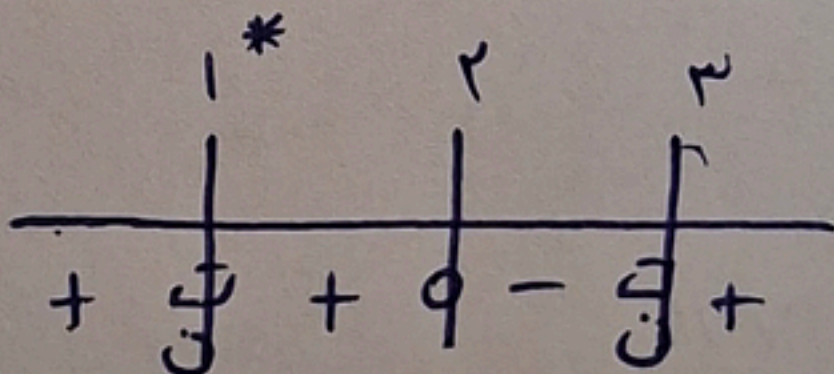
$$\frac{(x-1)(x-2)}{x-3}$$

تجزیه اشتباه است
مخرج درجه ۳ است!



ب

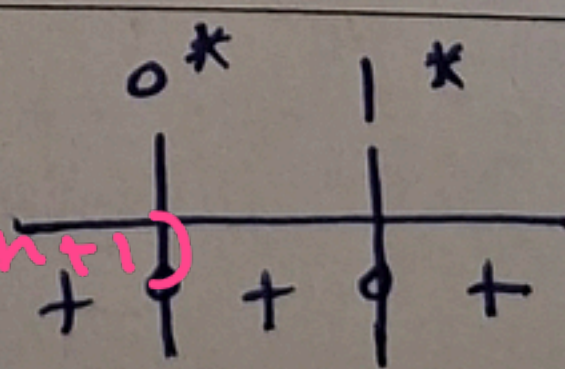
$$\frac{(x-1)(x-2)}{(x-1)(x-3)}$$



الف

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

ریشه ندارد



ب

$$\frac{x^2+3x+4}{x^2+2x+3}$$

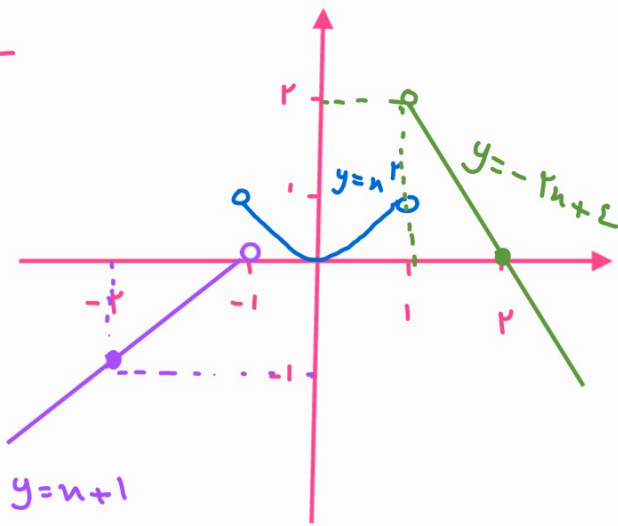
ریشه ندارد

همواره مثبت است

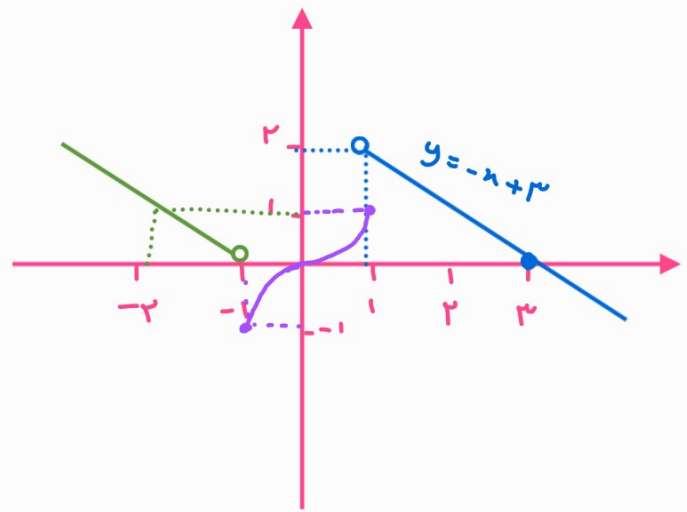
$$1, 25$$

$$1, 5$$

۵-



۶-



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

صفرهای مثبت $n-1$ و $n-1$ و $n-3$!

-2	*	3
+	-	+

۱۰- الف) $y = \frac{n^4 - n^2}{n^2 + n + 2} = \frac{n^2(n^2 - 1)}{n^2 + n + 2} = \frac{n^2(n-1)(n+1)}{n^2 + n + 2}$

صفرهای n^2 و $n-1$ و $n+1$!

-1	*	1
+	-	+