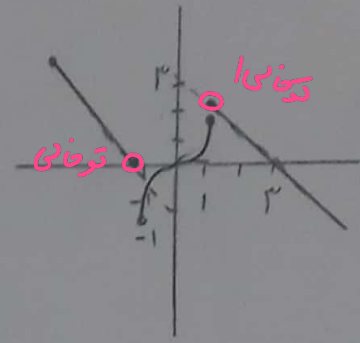


$f(x) = \begin{cases} -2x+3 & x > 1 \\ x^2 & -1 \leq x \leq 1 \\ -2x-1 & x < -1 \end{cases}$

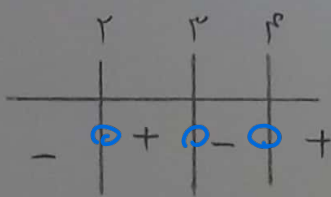
$y = x^2 - x - 1$
 $y = -1 \Rightarrow \begin{bmatrix} 0 \\ -1 \end{bmatrix}$
 $y = -2x - 1 \Rightarrow \begin{bmatrix} -1 \\ 0 \end{bmatrix}$
 $y = -2x + 3 \Rightarrow \begin{bmatrix} 1 \\ 0 \end{bmatrix}$



۱, ۵

الف) $(x-2)(x-3)(x-4)$

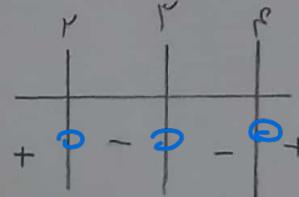
x^2 x^3 x^4



جدول نشانه
هات صفر با تغییر
نزد نزدیک!

ب) $y = (x-2)(x-3)^2(x-4)$

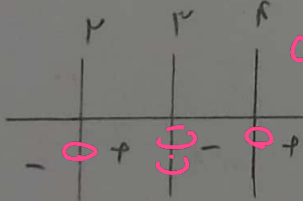
x^2 x^3 x^4 x^5



۱, ۵

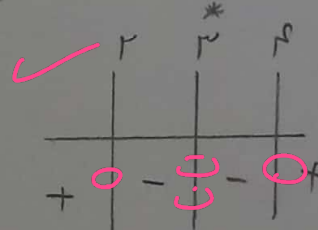
الف) $\frac{(x-2)(x-4)}{(x-3)}$

x^2 x^3



ب) $\frac{(x-2)(x-4)}{(x-3)^2}$

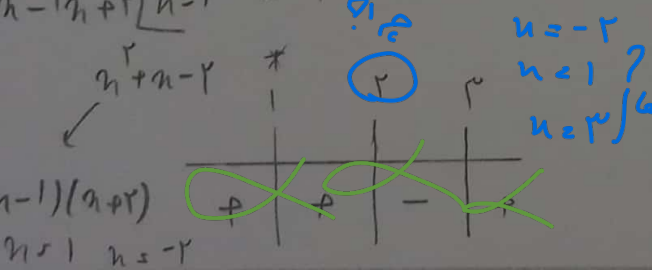
x^2 x^3



۱, ۵

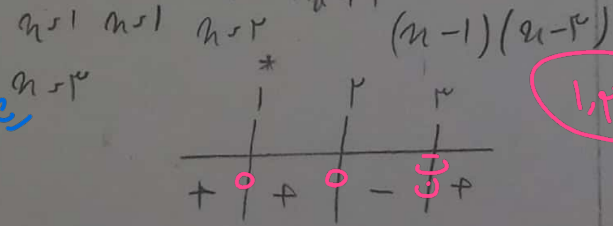
الف) $y = \frac{x^3 - 3x + 2}{x^2 - 1}$

x^3 x^2 x x^0



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

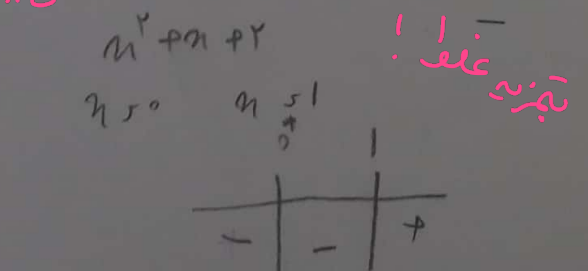
x^3 x^2 x x^0



۱, ۲, ۵

الف) $\frac{x^2 - x^2}{x^2 + x + 2}$

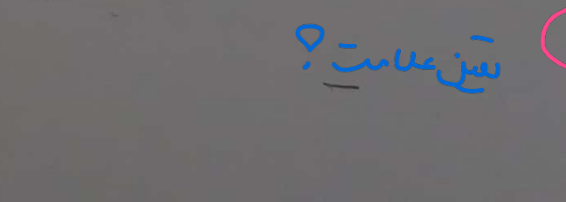
x^2 x x^0



تقریب غلط!

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

x^2 x x^0



نشانه غلط!

۱

ب- 1) $\begin{cases} y_1^3 + y_1 = 2n_1^2 - 1 \\ y_2^3 + y_2 = 2n_2^2 - 1 \end{cases} \xrightarrow{\text{if } n_1 = n_2} y_1^3 + y_1 = y_2^3 + y_2 \rightarrow \underbrace{y_1^3 - y_2^3}_{\text{فیل مضاعف}} + (y_1 - y_2) = 0$

$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2) \cdot 0 \rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0$

$\downarrow$ $y_1 = y_2$ $\checkmark$ نتیجه یابوست! $y_1 = \frac{-y_2 \pm \sqrt{y_2^2 - 4(y_2^2 + 1)}}{2}$

الف- 2) $y = n^2 - 1$  رسم نمودار

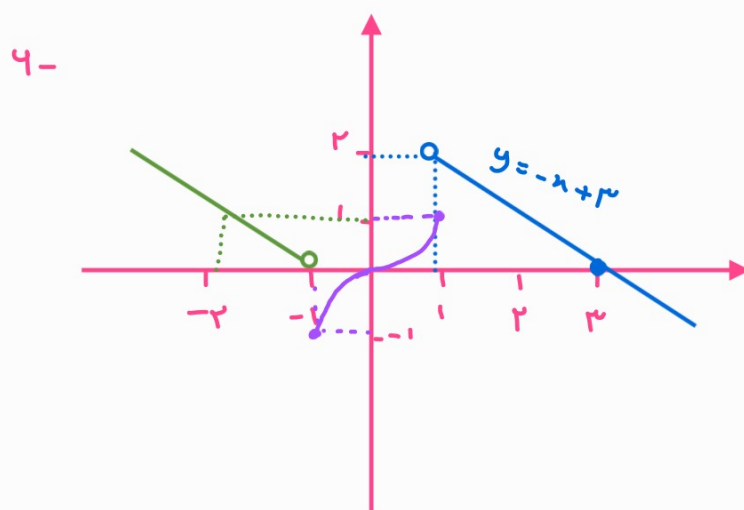
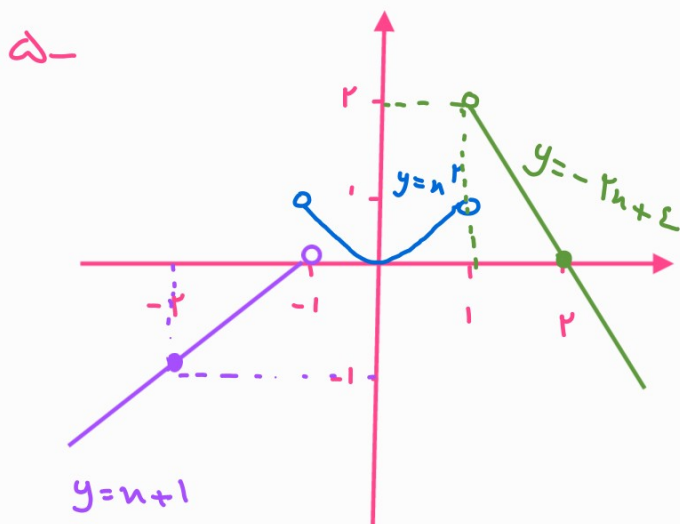
ج- 2) $y^3 + n^3 = 2n - 1 \xrightarrow{\text{تقریبی}}$

$\begin{cases} y_1^3 + n_1^3 = 2n_1 - 1 \\ y_2^3 + n_2^3 = 2n_2 - 1 \end{cases} \xrightarrow{\text{if } n_1 = n_2} y_1^3 = y_2^3 \rightarrow y_1 = y_2$ $\checkmark$ نتیجه یابوست!

د- 2) $\sqrt[3]{y} + \sqrt[3]{n} = 2 \xrightarrow{\text{تقریبی}}$

$\begin{cases} \sqrt[3]{y_1} + \sqrt[3]{n_1} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{n_2} = 2 \end{cases} \xrightarrow{\text{if } n_1 = n_2} 2 - \sqrt[3]{y_1} = 2 - \sqrt[3]{y_2} \rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$ $\checkmark$ نتیجه یابوست!

$\sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$ $\checkmark$ نتیجه یابوست!



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

جوابی صفرات ہیں بر ۱-۲-۳

+ 0 - 0 - 0 +

(الف - ١٠) $y = \frac{n^r - n^r}{n^r + n + r} = \frac{n^r(n^r - 1)}{n^r + n + r} = \frac{n^r(1^n - 1)(n+1)^{-1}}{n^r + n + r}$

(ب- ۱) $y = \frac{n^2 + 3n + 4}{n^2 + 2n + 3} \rightarrow \Delta = (3)^2 - 4(4) = 9 - 16 < 0$
 $a = 1 > 0 \rightarrow$ همواره مثبت

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

عبارت همواره مثبت است!