

الف) $y^3 = x^2 - 1 \rightarrow y^3 - x^2 + 1 = 0$

الأساسيات / دهر / كيف $\rightarrow (x, y) \in P$ if $x_1 = x_2, y_1 = y_2$ 2

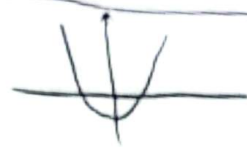
$y_1^3 - x_1^2 + 1 = y_2^3 - x_2^2 + 1$ if $x_1 = x_2$

ب) $y^3 + y = x^2 - 1$ 1 $y_1^3 = y_2^3 \rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \rightarrow y_1 = y_2$

$y_1^3 + y_1 = y_2^3 + y_2 \Rightarrow y_1^3 - y_2^3 + y_1 - y_2 = 0$
 $\Rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2) = 0$
 $\Rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0$

طريق آخر: دهن کلاس پراثر هم افتاد و یه معادله همواره مشتق $<$ این پراثر و منفرد 2 تابع $y_1 - y_2 = 0 \rightarrow y_1 = y_2$ 1.5

الف) $y = x^2 - 1 \rightarrow y = -1$ 1.5



ب) $|y| + y^2 = x^2 + 1 \Rightarrow |y| = 1 \rightarrow y = \pm 1$ 1.5

بخوانید با مثال: تحقق یابید برای عبارت تابع چیست. (رو به شش بلندی یا صفر)

ج) $y^3 + x^2 = x^2 - 1 \rightarrow y^3 = -1 \rightarrow y = -1$ 1.5

پاسخ صحیح را بنویسید!

د) $\sqrt[3]{y} + \sqrt[3]{x} = 2 \Rightarrow \sqrt[3]{y} = 2 \rightarrow y = 8$ 1.5

الف) $\tan \frac{\pi}{4} = \frac{\frac{\sqrt{2}}{2}}{\frac{1}{2}} = \sqrt{2}$ 1.5

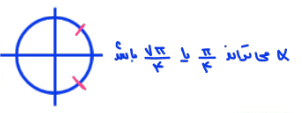
ب) $\cot \frac{\sqrt{2}\pi}{4} = \frac{-\frac{\sqrt{2}}{2}}{\frac{1}{2}} = -\sqrt{2}$ 1.5

ج) $\tan 330^\circ = -\frac{1}{\sqrt{3}}$ 1.5

د) $\cos 18^\circ = \frac{1}{2}$ 1.5

الف) $\sin \alpha = \frac{1}{2} \Rightarrow \alpha = \{30^\circ, 150^\circ\} \subseteq \{2k\pi + \frac{\pi}{6}, 2k\pi + \frac{5\pi}{6}\}$ 1.5

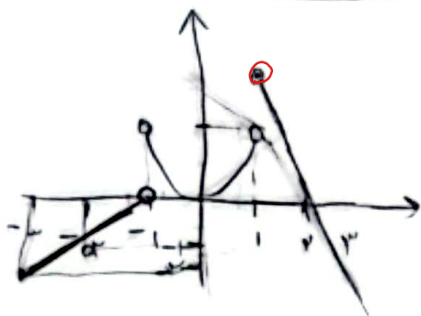
ب) $\cos \alpha = \frac{\sqrt{2}}{2} \Rightarrow \alpha = \{45^\circ, 135^\circ\} \subseteq \{2k\pi + \frac{\pi}{4}, 2k\pi + \frac{3\pi}{4}\}$ 1.5



$x = -2n + k$

n	3
0	3
1	1
2	-1
3	-3

 $-4 \leq x \leq 4$

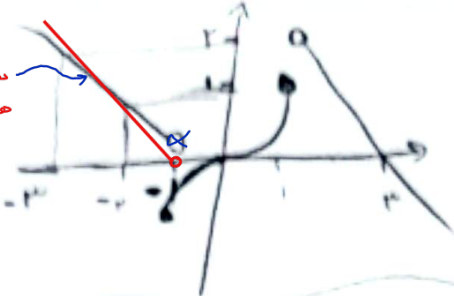


$x^2 - 1 < x < 1$

$x+1$

x	3
-4	3
-2	-1
-1	-2

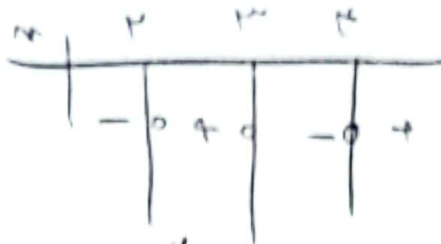
نقطه -۱- را روی محور x حساب کنید



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الف) $y = (x-2)(x-3)(x-4)$



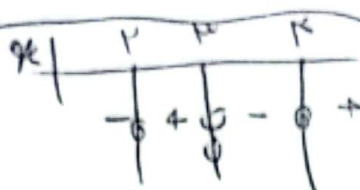
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ب) $y = (x-2)(x-3)^2(x-4)$



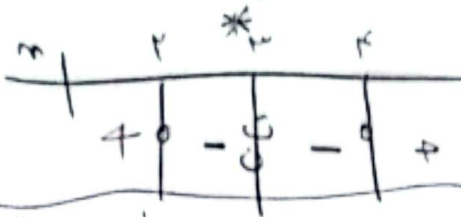
1

الف) $y = \frac{(x-2)(x-4)}{x-3}$



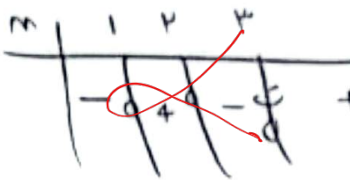
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ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$



✓

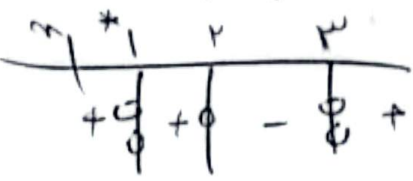
الف) $y = \frac{x^2 - 3x + 2}{x-2} \Rightarrow y = \frac{(x-2)(x-1)}{x-2}$



باسم صفا!

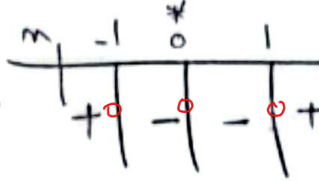
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ب) $y = \frac{x^2 - 3x + 2}{x^2 - 3x + 2} \Rightarrow \frac{(x-2)(x-1)}{(x-1)(x-2)}$



✓

الف) $y = \frac{x^2 - x^2}{x^2 + x + 2} \Rightarrow \frac{x^2 \left(\frac{1}{x^2} - 1 \right)}{x^2 + x + 2}$



1.

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

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صفت

✓

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

ج) $y^3 + x^3 = 4x - 1$

تقریباً ریاضی $\rightarrow \begin{cases} y_1^3 + x_1^3 = 4x_1 - 1 \\ y_2^3 + x_2^3 = 4x_2 - 1 \end{cases} \xrightarrow{x_1 = x_2} \begin{cases} y_1^3 + x^3 = 4x - 1 \\ y_2^3 + x^3 = 4x - 1 \end{cases} \rightarrow y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ تابع است.

د) $\sqrt[3]{y} + \sqrt[3]{x} = 2$

تقریباً ریاضی $\rightarrow \begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x_1} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{x_2} = 2 \end{cases} \xrightarrow{x_1 = x_2} \begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x} = 2 \\ \sqrt[3]{y_2} + \sqrt[3]{x} = 2 \end{cases} \Rightarrow \sqrt[3]{y_1} = \sqrt[3]{y_2} \Rightarrow y_1 = y_2$ تابع است.

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الف) $y = \frac{x^3 - 3x + 2}{x - 3}$

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

ریشه ها $\Rightarrow -2, 1, 3$

