

کلیف

ب.ار شست نژاد

Year. Month. Date. ()

آفین

① - اف $y^3 = 2x^2 - 1$

✓

$$\begin{cases} y_1^3 = 2x_1^2 - 1 \\ y_2^3 = 2x_2^2 - 1 \end{cases} \xrightarrow{m_1 = m_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2 \quad \checkmark$$

ب) $y^3 + y = 3x^2 - 1$ $\begin{cases} y_1^3 + y_1 = 3x_1^2 - 1 \\ y_2^3 + y_2 = 3x_2^2 - 1 \end{cases} \xrightarrow{m_1 = m_2} y_1^3 + y_1 = y_2^3 + y_2 \Rightarrow y_1^3 + y_1 - y_2^3 - y_2 = 0$

$$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + y_1 - y_2 = 0 \Rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0 \Rightarrow \begin{cases} y_1 - y_2 = 0 \\ y_1^2 + y_1 y_2 + y_2^2 + 1 = 0 \end{cases}$$

$$\Delta = y_1^2 - 4(y_1^2 + 1) = -3y_1^2 - 4 < 0 \Rightarrow y_1 = y_2$$

② اف $y^2 = x^2 - 1$

لکه چون دت منفی می شود پس فقط در این صورت $y_1 = y_2$ تابع است.



ب) $|y| + xy = x^2 + 1$

$\Rightarrow |y| + 0 = 0 + 1 \Rightarrow |y| = 1 \Rightarrow y = \pm 1$ تابع ✓

ج) $y^3 + x^3 = 2x - 1$ $\begin{cases} y_1^3 + x_1^3 = 2x_1 - 1 \\ y_2^3 + x_2^3 = 2x_2 - 1 \end{cases} \xrightarrow{m_1 = m_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2$

د) $\sqrt[3]{y} + \sqrt{x} = 2$ $\begin{cases} \sqrt[3]{y_1} + \sqrt{x_1} = 2 \\ \sqrt[3]{y_2} + \sqrt{x_2} = 2 \end{cases} \xrightarrow{m_1 = m_2} \sqrt[3]{y_1} = \sqrt[3]{y_2} \Rightarrow y_1 = y_2$

③ اف $\tan \frac{\pi}{3} \rightarrow 4.2$

$\tan z = \frac{\sin z}{\cos z} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

ب) $\cot \frac{\pi}{6} \rightarrow 1.7$

$\cot z = \frac{\cos z}{\sin z} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

ج) $\tan 330^\circ$

$\tan z = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$

د) $\cot 180^\circ$

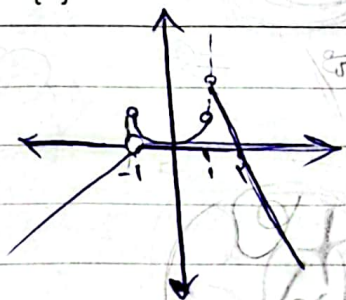
$\cot z = \frac{\cos z}{\sin z} = \frac{1}{0}$ تعریف نشده

④ $\sin \alpha = \frac{1}{2}$
 $30^\circ, 150^\circ$

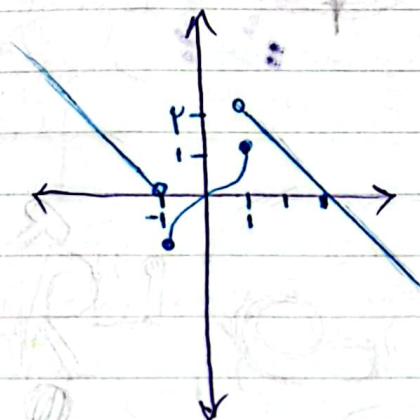
ب) $\cos \alpha = \frac{\sqrt{2}}{2}$
 $45^\circ, 315^\circ$

✓

3



4

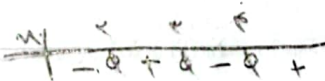


2

✓

5

الف) $y = (n-2)(n-3)(n-4)$



ب) $y = (n-2)(n-3)^2(n-4)$

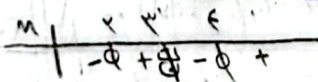


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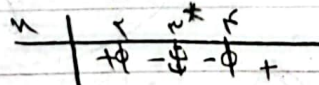
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6

الف) $y = \frac{(n-2)(n-4)}{n-3}$



ب) $y = \frac{(n-2)(n-4)}{(n-3)^2}$



2

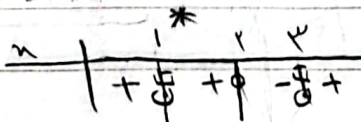
✓

7

الف) $y = \frac{(n+1)(n-1)^2}{n-2}$



ب) $y = \frac{(n-1)(n-1)^2}{(n-1)(n-2)}$



2

✓

$$n^2(n-1)(n+1)$$

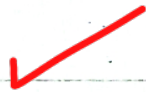
10) الف) $y = \frac{n^2 - n^2}{n^2 + n + 1}$

$$\begin{array}{c|cccc} n & -1 & 0^* & 1 & \\ \hline & + & - & - & + \end{array}$$

$$\Delta < 0$$

ب) $y = \frac{n^2 + 2n + 1}{n^2 + 2n + 1}$ $\Delta < 0$ $\rightarrow$ $\frac{4}{4} = 1$

2



بالای هر $n \in \mathbb{R}$ همیشه درست است.