

الف) $y'' = 2x - 1 \rightarrow \begin{cases} y_1'' = 2x_1 - 1 \\ y_2'' = 2x_2 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1'' = y_2'' \rightarrow y_1 = y_2$ تابع است (۲)

ب) $y'' + y = 3x - 1 \rightarrow \begin{cases} y_1'' + y_1 = 3x_1 - 1 \\ y_2'' + y_2 = 3x_2 - 1 \end{cases} \xrightarrow{x_1 = x_2} y_1'' + y_1 = y_2'' + y_2$
تابع است
 $y_1'' - y_2'' + y_1 - y_2 = 0$

$(y_1 - y_2)'' + (y_1 - y_2) = 0$
 $(y_1 - y_2)(y_1'' + y_1 + y_2'' + y_2 + 1) = 0$
 $(y_1 - y_2)(y_1'' + y_1 + y_2'' + y_2 + 1) = 0$
 $y_1'' - y_2'' + y_1 - y_2 = 0$
 $y_1'' - y_2'' + y_1 - y_2 = 0$

ج) $y'' = 2x - 1 \rightarrow y_1'' = 2x_1 - 1$ تابع است (۱۱۵)

د) $|y| + x = 2x - 1 \rightarrow |y| + 1 = 2x \rightarrow |y| = 1 \rightarrow y = \pm 1$ تابع است
مثال نقیض

ه) $y'' + x = 2x - 1 \rightarrow y'' = 2x - 1 - x$ تابع است
 $\begin{cases} y_1'' = 2x_1 - 1 - x_1 \\ y_2'' = 2x_2 - 1 - x_2 \end{cases} \xrightarrow{x_1 = x_2} y_1'' = y_2''$

و) $y'' + \sqrt{x} = 2$ تابع است
باسن صفحه



Senobar

$$\text{ا) } \tan \frac{\pi}{4} = \tan 45^\circ \Rightarrow \frac{\sin 45^\circ}{\cos 45^\circ} = \frac{\frac{\sqrt{2}}{2}}{\frac{1}{2}} = \sqrt{2} \quad \checkmark \quad \text{--- ٣} \quad \textcircled{٢}$$

$$\text{ب) } \cot \frac{\pi}{4} = \cot 45^\circ \rightarrow \frac{\cos 45^\circ}{\sin 45^\circ} = \frac{-\frac{\sqrt{2}}{2}}{-\frac{1}{2}} = \sqrt{2} \quad \checkmark$$

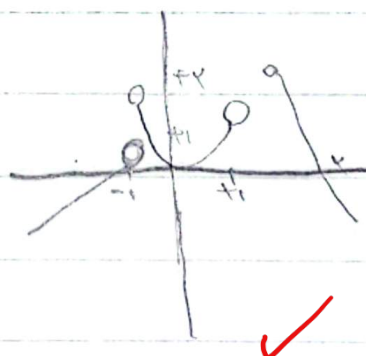
$$\text{ج) } \tan 135^\circ = \frac{\sin 135^\circ}{\cos 135^\circ} = \frac{-\frac{1}{2}}{\frac{\sqrt{2}}{2}} = -\frac{1}{\sqrt{2}} \quad \checkmark$$

$$\text{د) } \cot 180^\circ = \frac{\cos 180^\circ}{\sin 180^\circ} = \frac{-1}{0} = \text{undefined} \quad \checkmark$$

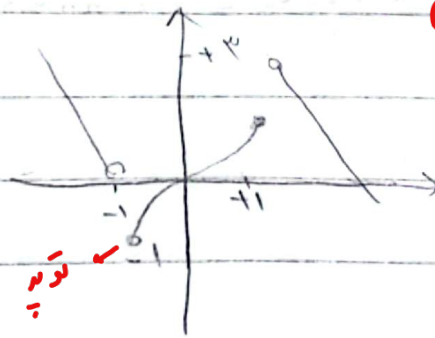
$$\text{ا) } \sin a = \frac{1}{2} \rightarrow a = \frac{\pi}{6}, \frac{5\pi}{6} \quad \checkmark \quad 0 < a < \pi \quad \text{--- ٤} \quad \textcircled{٢}$$

$$\text{ب) } \cos a = \frac{\sqrt{2}}{2} \rightarrow a = \frac{\pi}{4}, \frac{7\pi}{4} \quad \checkmark$$

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



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



1,75

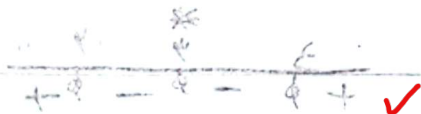
4

الف) $y = (x-2)^2(x-3)^3(x-4)^5$



2

ب) $y = (x-2)^1(x-3)^3(x-4)^5$



2

الف) $y = \frac{(x-2)^2(x-4)^5}{x-3}$



ب) $y = \frac{(x-2)^1(x-4)^5}{(x-3)^2}$

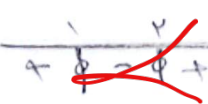


الف) $y = \frac{x^3 - 3x + 2}{x-3}$

0

ب) $y = \frac{x^2 - 3x + 2}{x^2 - 5x + 3}$

$\frac{(x-1)(x-2)}{x^2 - 5x + 3}$



$a+b+c=0 \rightarrow 1$
 $\rightarrow 3$

پاسن صحنه



Senobar

$$y = \frac{x^4 - x^2}{x^2 + x + 2} = \frac{(x-0)(x-0)(x-1)(x+1)}{x^2 + x + 2}$$

$\Delta < 0 \rightarrow$ ریشه ندارد

$\begin{array}{c} -1 \quad * \quad 1 \\ + \quad - \quad - \quad + \end{array}$

۱.۵

$$y_2 = \frac{x^3 + 3x + 2}{x^2 + 2x + 3}$$

$\Delta < 0$ ریشه ندارد

$$\Rightarrow \text{دلتای صورت} \Rightarrow (3)^2 - 4(1)(2) = -1 < 0 \quad \text{هواره مثبت}$$

$$\Rightarrow \text{دلتای مخرج} \Rightarrow (2)^2 - 4(1)(3) = -8 < 0 \quad \text{هواره مثبت}$$

عبارت هواره مثبت است

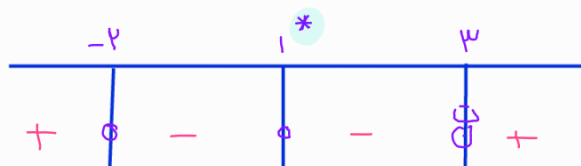
$$\Rightarrow \sqrt[3]{y} + \sqrt[3]{x} = 2$$

$$\begin{aligned} \text{تعريف رياضي} \rightarrow \begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x_1} = 2 \\ \sqrt[3]{y} + \sqrt[3]{x} = 2 \end{cases} \xrightarrow{x_1 = x_2} \begin{cases} \sqrt[3]{y_1} + \sqrt[3]{x} = 2 \\ \sqrt[3]{y_1} + \sqrt[3]{x} = 2 \end{cases} \Rightarrow \sqrt[3]{y_1} = \sqrt[3]{y} \Rightarrow y_1 = y_2 \quad \text{تابع است} \end{aligned}$$

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

$$\rightarrow y = \frac{(x-1)(x^2 + x - 2)}{(x-3)} = \frac{(x-1)(x-1)(x+2)}{(x-3)} \quad \begin{matrix} \text{ریشه } -2 \\ \text{ریشه } 3 \end{matrix}$$

ریشه ها $\Rightarrow -2$ و 3



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

$$\rightarrow y = \frac{(x-1)(x-2)}{(x-1)(x-3)} \quad \begin{matrix} \text{ریشه } 1 \\ \text{ریشه } 3 \end{matrix}$$

ریشه ها $\Rightarrow 1$ و 3

