

نام و نام خانوادگی علیرضا میرزایی پاسخنامه تشریحی تکلیف شماره کلاس

$$\checkmark y_1^3 = 2x_1^2 - 1 \rightarrow y_1^3 = 2x_1^2 - 1 \xrightarrow{x_1 = x_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2 \text{ باطل است}$$

$$\checkmark y_1^3 + y_2^3 = 2x_1^2 - 1 \xrightarrow{x_1 = x_2} y_1^3 + y_2^3 = 2x_1^2 - 1 \xrightarrow{x_1 = x_2} y_1^3 + y_2^3 = 2x_1^2 - 1$$

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

$$\checkmark y_1 = x_1^2 - 1 \rightarrow y_1 = x_1^2 - 1 \xrightarrow{x_1 = x_2} y_1 = x_2^2 - 1 \xrightarrow{x_1 = x_2} y_1 = x_2^2 - 1$$

$$\sqrt{2x_1^2 - 1} = \sqrt{2x_2^2 - 1} \Rightarrow x_1 = x_2 \text{ باطل است}$$

$$\checkmark |y_1| + x_1 y_2 = x_1^2 + 1 \xrightarrow{x_1 = 0} |y_1| + 0 = 0 + 1 \Rightarrow |y_1| = 1 \Rightarrow y_1 = \pm 1$$

$$\checkmark y_1^3 = x_1^2 - 1 \xrightarrow{x_1 = 0} y_1^3 = -1 \Rightarrow y_1 = -1$$

$$\checkmark \sqrt{y_1} + \sqrt{x_1} = 2 \xrightarrow{x_1 = 0} \sqrt{y_1} = 2 \Rightarrow y_1 = 4$$

$$\tan \frac{\pi}{6} = \frac{1}{\sqrt{3}} \Rightarrow \frac{1}{\sqrt{3}} = \frac{1}{\sqrt{3}}$$

$$\tan 45^\circ = 1 \Rightarrow 1 = 1$$

$$\cot \frac{\sqrt{\pi}}{9} = \frac{\sqrt{\pi}}{9}$$

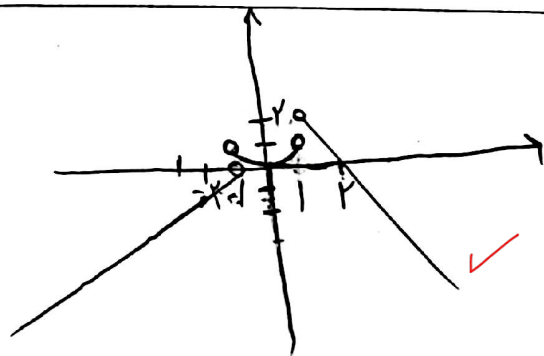
$$\cot 45^\circ = 1 \Rightarrow 1 = 1$$

$$\sin \alpha = \frac{1}{\sqrt{2}} \Rightarrow \alpha = 45^\circ, 135^\circ \Rightarrow \frac{\pi}{4}, \frac{3\pi}{4}$$

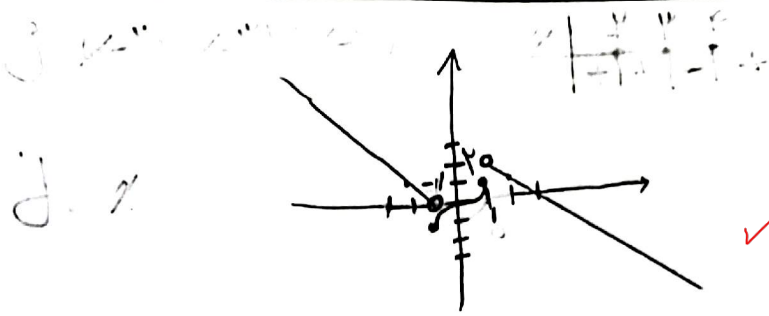
$$\cos \alpha = \frac{\sqrt{2}}{2} \Rightarrow \alpha = 45^\circ, 315^\circ \Rightarrow \frac{\pi}{4}, \frac{7\pi}{4}$$



α می تواند $\frac{\pi}{4}$ یا $\frac{3\pi}{4}$ باشد



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



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

2

$$y = (x-1)(x-3)(x-5)$$

$$\begin{array}{c|cccc} x & 1 & 3 & 5 & \\ \hline & - & + & - & + \end{array}$$

$$D_{f_2} \mathbb{R}$$

دامنه یعنی حوزار مسائل

2

$$f = (x-1)(x-3)^2(x-5)$$

$$\begin{array}{c|cccc} x & 1 & 3 & 5 & \\ \hline & + & - & + & + \end{array}$$

$$D_{f_2} \mathbb{R}$$

یا صفره

7

$$y = \frac{(x-1)(x-5)}{x-3}$$

$$\begin{array}{c|cccc} x & 1 & 3 & 5 & \\ \hline & - & + & - & + \end{array} \quad D_{f_2} \mathbb{R} - \{3\}$$

2

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

$$\begin{array}{c|cccc} x & 1 & 3 & 5 & \\ \hline & + & - & + & + \end{array} \quad D_{f_2} \mathbb{R} - \{3\}$$

8

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

$$\begin{array}{c|cccc} x & 1 & 2 & 4 & \\ \hline & + & - & - & + \end{array}$$

$$D_{f_2} \mathbb{R} - \{1, 4\}$$

0

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

$$\begin{array}{c|cccc} x & 1 & 2 & 4 & \\ \hline & - & + & - & + \end{array}$$

$$D_{f_2} \mathbb{R} - \{4\}$$

یا صفره

9

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

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

$$D_{f_2} \mathbb{R}$$

3

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

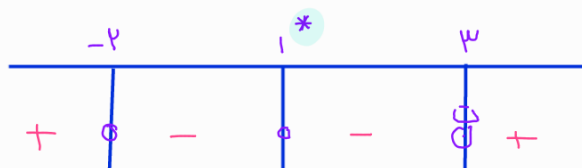
صفره نیست

الف) $y = \frac{x^3 - 3x + 2}{x - 3}$

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

$\xrightarrow{3}$ $\xrightarrow{-2}$

ریشه ها $\Rightarrow -2$ و 3



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

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

$\xrightarrow{1}$ $\xrightarrow{2}$ $\xrightarrow{3}$

ریشه ها $\Rightarrow 1$ و 2 و 3

