

آفدین ۲۰

سوال ۲ ←

۱) $y^k = 2n^k - 1$

$$\begin{cases} y_1^k = 2n_1^k - 1 \\ y_2^k = 2n_2^k - 1 \end{cases} \quad n_1 = n_2 \quad \Rightarrow \quad y_1^k = y_2^k \rightarrow \text{تابع هست} \\ \Rightarrow \quad y_1 = y_2 \quad \checkmark$$

ب) $y^k + y = 2n^k - 1$

✓

$$\begin{cases} y_1^k + y_1 = 2n_1^k - 1 \\ y_2^k + y_2 = 2n_2^k - 1 \end{cases} \quad n_1 = n_2 \quad \Rightarrow \quad y_1^k + y_1 = y_2^k + y_2 \rightarrow \text{تابع} \\ \Rightarrow y_1^k + y_1 - y_2^k - y_2 = 0 \\ (y_1 - y_2)(y_1^k + y_1 y_2 + y_2^k) + y_1 - y_2 = 0 \\ \Rightarrow (y_1 - y_2)(y_1^k + y_1 y_2 + y_2^k + 1) = 0 \\ \Rightarrow y_1 - y_2 = 0 \rightarrow y_1 = y_2 \quad \leftarrow 2 \text{ سوال}$$

ج) $y = n^k - 1$

$$\begin{cases} y_1 = n_1^k - 1 \\ y_2 = n_2^k - 1 \end{cases} \quad n_1 = n_2 \quad \Rightarrow \quad y_1 = y_2 \quad \checkmark \rightarrow \text{تابع}$$

د) $|y| + ny = n^k + 1$

✓

۱) $n = 0 \Rightarrow |y| = 1 \rightarrow \text{تابع}$
 $y = \begin{matrix} 1 \\ -1 \end{matrix}$

۲) $y^k + n^k = 2n - 1$

$$\begin{cases} y_1^k + n_1^k = 2n_1 - 1 \\ y_2^k + n_2^k = 2n_2 - 1 \end{cases} \quad n_1 = n_2 \quad \Rightarrow \quad y_1^k = y_2^k \rightarrow \text{تابع} \\ \Rightarrow \quad y_1 = y_2 \quad \checkmark$$

$$2) \sqrt[n]{x} + \sqrt[n]{n} = 1$$

(2) ✓

$$\begin{cases} \sqrt[n]{x_1} = 1 - \sqrt[n]{n_1} & n_1 \in \mathbb{N} \\ \sqrt[n]{x_2} = 1 - \sqrt[n]{n_2} \end{cases} \rightarrow$$

$$\sqrt[n]{x_1} = \sqrt[n]{x_2} \rightarrow x_1 = x_2 \quad \checkmark$$

Cano $\rightarrow$

$$a) \tan \frac{\pi}{4} \rightarrow \frac{\sin \frac{\pi}{4}}{\cos \frac{\pi}{4}} \rightarrow \frac{\frac{\sqrt{2}}{2}}{\frac{1}{2}} = \frac{\sqrt{2}}{1} = \sqrt{2}$$

3 سوال

$$b) \cot \frac{\pi}{4} \rightarrow \frac{\cos \frac{\pi}{4}}{\sin \frac{\pi}{4}} \rightarrow \frac{\frac{\sqrt{2}}{2}}{\frac{1}{2}} = \frac{\sqrt{2}}{1} = \sqrt{2}$$

$$c) \tan \frac{3\pi}{4} \rightarrow \frac{\sin \frac{3\pi}{4}}{\cos \frac{3\pi}{4}} \rightarrow \frac{\frac{1}{2}}{\frac{\sqrt{2}}{2}} = \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}}$$

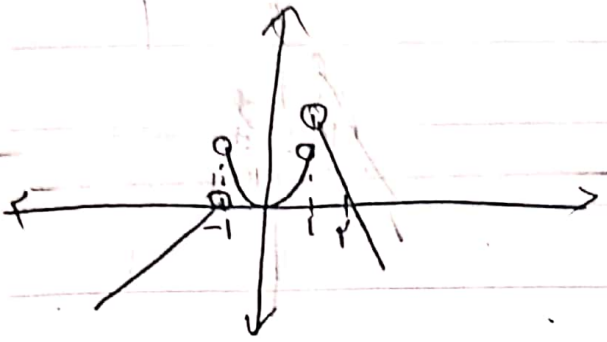
$$d) \cot \frac{3\pi}{4} \rightarrow \frac{\cos \frac{3\pi}{4}}{\sin \frac{3\pi}{4}} \rightarrow \frac{-1}{\frac{1}{2}} = -2$$

4 سوال

$$a) \sin a = \frac{1}{2} \rightarrow a = \frac{\pi}{6}, \frac{5\pi}{6}$$

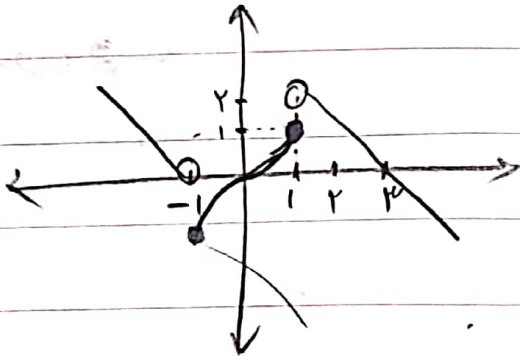
$$b) \cos a = \frac{\sqrt{2}}{2} \rightarrow a = \frac{\pi}{4}, \frac{3\pi}{4}$$

← سوال 5



Ⓐ ✓

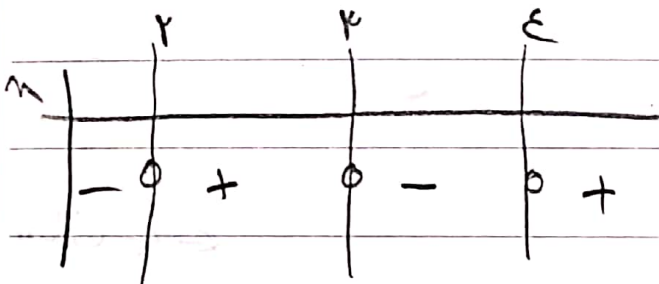
← سوال 6



Ⓐ ✓

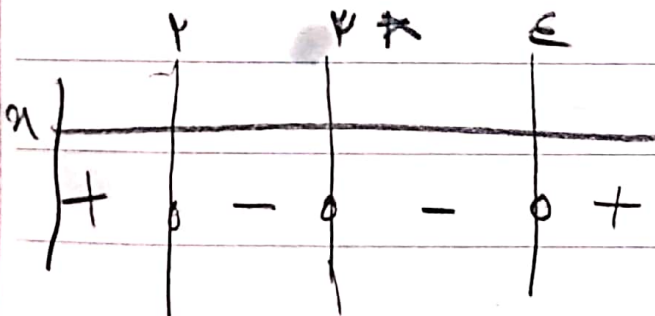
← سوال 7

$$\text{علی } y = (x-1)(x-2)(x-3)$$



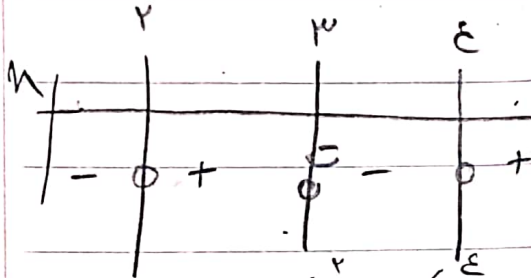
Ⓐ ✓

$$\text{علی } (x-1)(x-2)(x-3)^2(x-4)$$

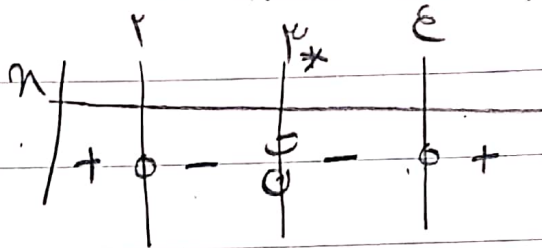


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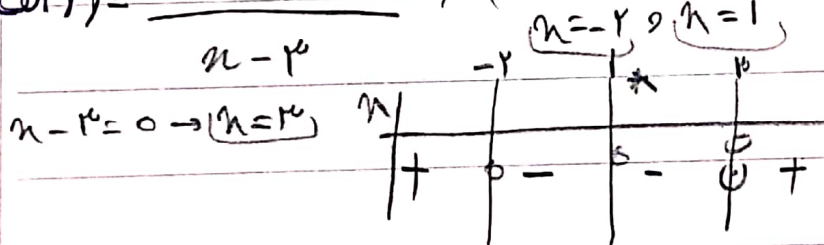
$$\text{حل 1) } y = \frac{(x-2)(x-5)}{x-4}$$



$$\text{ج) } y = \frac{(x-2)(x-5)}{(x-4)^2 - 4}$$

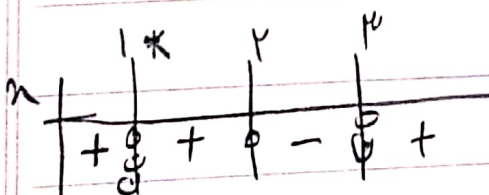


$$\text{حل 1) } y = \frac{x^2 - 3x + 2}{x-4} \Rightarrow (x+2)(x-1)^2 = 0$$



$$\text{ج) } \frac{x^2 - 3x + 2}{x^2 - 5x + 4} \rightarrow \frac{x^2 - 3x + 2}{x^2 - 5x + 4} = \frac{(x-1)(x-2)}{(x-1)(x-4)} = 0$$

$$x=1, x=2$$



← 100 hrs

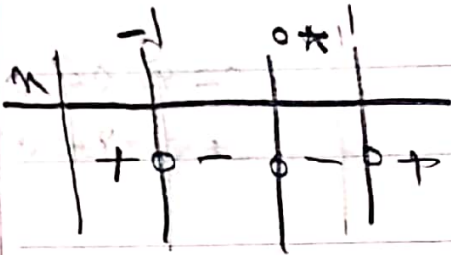
$$\text{cvi) } \frac{n^E - n^Y}{n^Y + n + Y} \Rightarrow n^E - n^Y = 0$$

$$\therefore n^Y(n^Y - 1) = 0$$

$$n^Y = 0 \text{ or } n^Y - 1 = 0$$

$$n = 0 \quad n^Y = 1$$

$$n = 1 - 1$$



$$\text{cvi) } \frac{n^Y + Yn + E}{n^Y + Yn + Y} \xrightarrow{\text{sign}} \text{sign}$$

Ⓢ

$$\Rightarrow \frac{C_{100} \rightarrow +}{\text{sign} \rightarrow +} \xrightarrow{1R \text{ } 100 \text{ } 100 \text{ } 100} \frac{+}{+} = (+)$$