

سوال (۱)

$$\text{الف) } \begin{cases} \text{if } (n_1, y_1) \in F \\ \text{if } (n_2, y_2) \in F \end{cases} \xrightarrow{n_1 = n_2} y_1 = y_2$$

$$y_1^3 = 2n_1 - 1$$

$$y_2^3 = 2n_2 - 1$$

$$y_1^3 = y_2^3$$

$$\boxed{y_1 = y_2} \leftarrow \text{تابع است}$$

$$\text{ب) } y_1^3 + y_1 = 2n_1 - 1 \quad y_2^3 + y_2 = 2n_2 - 1$$

$$y_1^3 + y_1 = 2n_1 - 1 \quad y_2^3 + y_2 = 2n_2 - 1$$

$$y_1^3 - y_2^3 + y_1 - y_2 = 0$$

$$\rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2)$$

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

$$\rightarrow y_1 = y_2 \quad \text{تابع است}$$

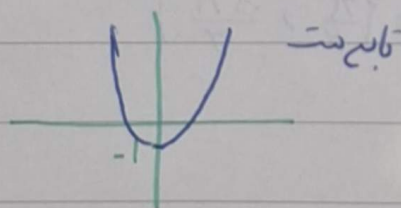
$$y_1^2 + y_1 y_2 + y_2^2 + 1 = 0$$

$$-3y_1^2 - 4 = y_2^2 - 4y_2 - 4 \leftarrow \Delta = b^2 - 4ac$$

$$\Delta \text{ منفی نمی شود}$$

سوال (۲)

الف)



$$\text{ب) } n=0 \rightarrow |y|=1 \quad y \neq 1 \quad \text{تابع نیست}$$

$$\text{ج) } y_1^3 + n_1^3 = 2n_1 - 1 \Rightarrow y_1^3 = y_2^3 - 1 \quad y_1 = y_2 \quad \text{تابع است}$$

$$y_2^3 + n_2^3 = 2n_2 - 1$$

$$\text{د) } \sqrt[3]{y_1} + \sqrt[3]{n_1} = 2 \Rightarrow \sqrt[3]{y_1} = \sqrt[3]{n_1} \rightarrow y_1 = n_1 \quad \text{تابع است}$$

$$\sqrt[3]{y_2} + \sqrt[3]{n_2} = 2$$

سوال (۳)

الف) $\frac{\pi}{3} \mid \begin{matrix} \frac{1}{2} \\ \frac{\sqrt{3}}{2} \end{matrix}$ $\frac{\sin \frac{\pi}{3}}{\cos \frac{\pi}{3}} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

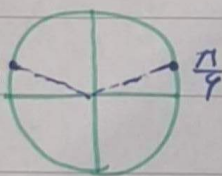
ب) $\frac{\sqrt{\pi}}{4} \mid \begin{matrix} -\frac{\sqrt{3}}{4} \\ -\frac{1}{4} \end{matrix}$ $\frac{\cos \frac{\sqrt{\pi}}{4}}{\sin \frac{\sqrt{\pi}}{4}} = \frac{-\frac{\sqrt{3}}{4}}{-\frac{1}{4}} = \sqrt{3}$

ج) $330^\circ \mid \begin{matrix} \frac{\sqrt{3}}{2} \\ -\frac{1}{2} \end{matrix}$ $\frac{\sin 330^\circ}{\cos 330^\circ} = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}} = -\frac{\sqrt{3}}{3}$

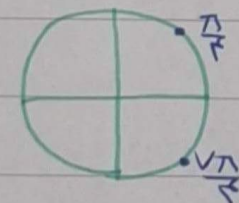
د) $180^\circ \mid \begin{matrix} 0 \\ -1 \end{matrix}$ $\frac{\cos 180^\circ}{\sin 180^\circ} = \frac{-1}{0} \rightarrow$ تعریف نشده

سوال (۴)

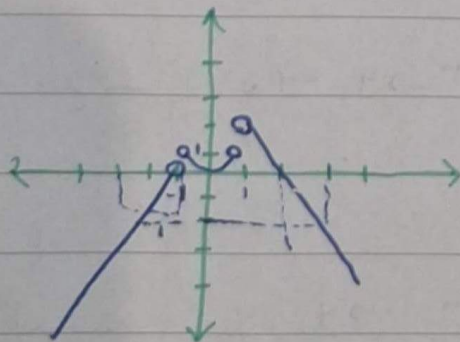
الف) $\frac{5\pi}{6} \mid \frac{\pi}{6}$ $a = \left\{ \frac{\pi}{6}, \frac{5\pi}{6} \right\}$



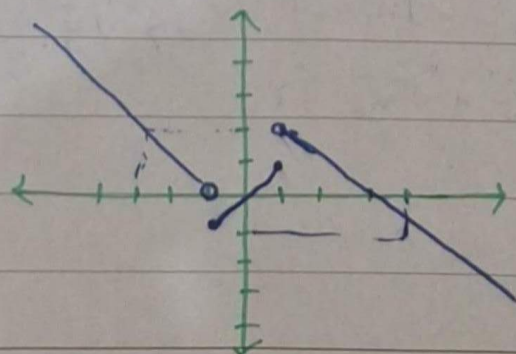
ب) $\frac{\pi}{4}$ $\frac{7\pi}{4}$ $a = \left\{ \frac{\pi}{4}, \frac{7\pi}{4} \right\}$



سوال (۵)



سوال (۶)



الف) $y = (n-2)(n-3)(n-4)$

n		2	3	4
y	-	0	0	0

(سوال 7)

ب) $y = (n-2)(n-3)^2(n-4)$

n		2	3	4
y	+	0	0	0

(سوال 8)

الف) $y = \frac{(n-2)(n-4)}{(n-3)}$

n		2	3	4
y	-	0	0	0

ب) $y = \frac{(n-2)(n-4)}{(n-3)^2}$

n		2	3	4
y	+	0	0	0

(سوال 9)

الف) $\frac{n^3 + 2n^2 - 3n + 2}{n-2} \rightarrow 1 + 0 - 3 + 2 = 0$

$\Rightarrow \frac{(n-1)(n-1)(n+2)}{n-2}$

$\frac{n^3 + 2n^2 - 3n + 2}{n-2} \mid n-1$

$\frac{-n^3 + n^2}{n^2 + n - 2} \rightarrow (n-1)(n+2)$

$\frac{n^2 - 3n + 2}{-n^2 + n}$

$\frac{-2n + 2}{+2n - 2}$

0

ب) $\frac{(n-1)(n-2)}{(n-1)(n-2)}$

n		1	2	3
y	+	0	0	0

Date : / /



سوال (۱۰)

الف) Δ خارج صفتی
لا ریشه ندارد

$$\frac{n \times n (n+1) (n-1)}{n^2 + n + 2}$$

ادرس -
0
0
0

n	-1	*	1
y	+	-	+

ب) Δ صورت و مخرج صفتی
لا ریشه ندارند

n	
y	+