

✓ $y^2 = rx - 1 \rightarrow \begin{cases} y_1^2 = rx_1 - 1 \\ y_2^2 = rx_2 - 1 \end{cases} \xrightarrow{m_1 = m_2} y_1^2 = y_2^2 \Rightarrow \boxed{y_1 = y_2}$ تابع است

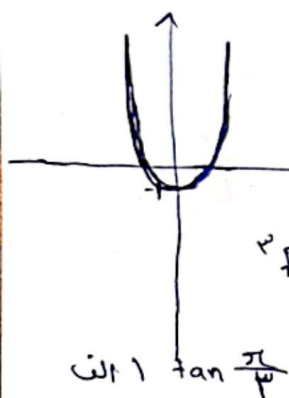
✓ $y^2 + y = rx - 1 \rightarrow \begin{cases} y_1^2 + y_1 = rx_1 - 1 \\ y_2^2 + y_2 = rx_2 - 1 \end{cases} \xrightarrow{m_1 = m_2} y_1^2 + y_1 = y_2^2 + y_2 \rightarrow y_1^2 - y_2^2 + y_1 - y_2 = 0$

$\rightarrow (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2) + (y_1 - y_2) = 0 \xrightarrow{\text{تفکیک}} (y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0$

$\Rightarrow \begin{cases} y_1 - y_2 = 0 \Rightarrow \boxed{y_1 = y_2} \checkmark \end{cases}$

$a = y_1^2 + y_1 y_2 + y_2^2 + 1 = 0 \rightarrow y_1 = \frac{-y_2 \pm \sqrt{\Delta}}{2} \rightarrow \Delta = y_2^2 - 4(y_2^2 + 1) = y_2^2 - 4y_2^2 - 4 = -3y_2^2 - 4$
 $y_1 = \frac{-y_2 \pm \sqrt{-3y_2^2 - 4}}{2} \xrightarrow{\Delta < 0} \text{پس این معادله را برقرار نیست}$ تابع است

✓ $y = x^2 - 1$ تابع است



$|y| + x y = x^2 + 1$

$\xrightarrow{m=0} |y| = 1 \Rightarrow \boxed{y = \pm 1}$ تابع است

✓ $y^2 + x^2 = rx - 1$ تابع است
 $\rightarrow y^2 = rx - x^2 - 1 \Rightarrow \begin{cases} y_1^2 = rx_1 - x_1^2 - 1 \\ y_2^2 = rx_2 - x_2^2 - 1 \end{cases} \xrightarrow{m_1 = m_2} y_1^2 = y_2^2 \Rightarrow \boxed{y_1 = y_2}$

$\sqrt{y} + \sqrt{x} = r \rightarrow \sqrt{y} = r - \sqrt{x} \rightarrow \begin{cases} \sqrt{y_1} = r - \sqrt{x_1} \\ \sqrt{y_2} = r - \sqrt{x_2} \end{cases} \xrightarrow{m_1 = m_2} \sqrt{y_1} = \sqrt{y_2} \Rightarrow \boxed{y_1 = y_2}$ تابع است

الف) $\tan \frac{\pi}{4}$

ب) $\cot \frac{5\pi}{4}$

ج) $\tan \frac{3\pi}{4}$

د) $\cot \frac{11\pi}{4}$

$\rightarrow \frac{\sin 135^\circ}{\cos 225^\circ} = \frac{\frac{1}{\sqrt{2}}}{-\frac{1}{\sqrt{2}}} = \boxed{-1}$ ✓

$\frac{\sin 90^\circ}{\cos 270^\circ} = \frac{1}{0} = \boxed{+\infty}$ ✓
 $\frac{\cos 180^\circ}{\sin 180^\circ} = \frac{-1}{0} = \boxed{-\infty}$ ✓
 تعیین شده ✓

✓ $\sin a = \frac{1}{2}$

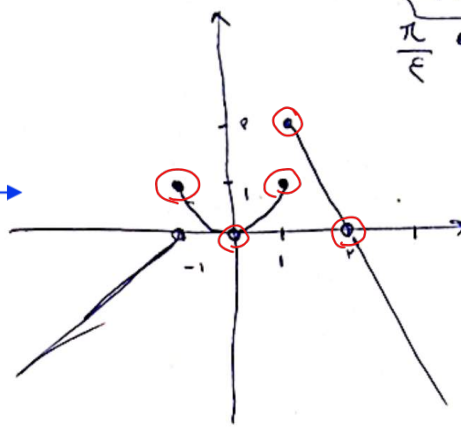
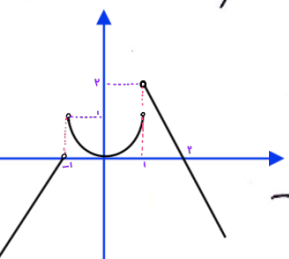
$\{a = 30^\circ, 150^\circ\} \rightarrow \frac{\pi}{6}$

✓ $\cos a = \frac{\sqrt{2}}{2}$

$\{a = 45^\circ, 135^\circ\} \rightarrow \frac{\pi}{4}$

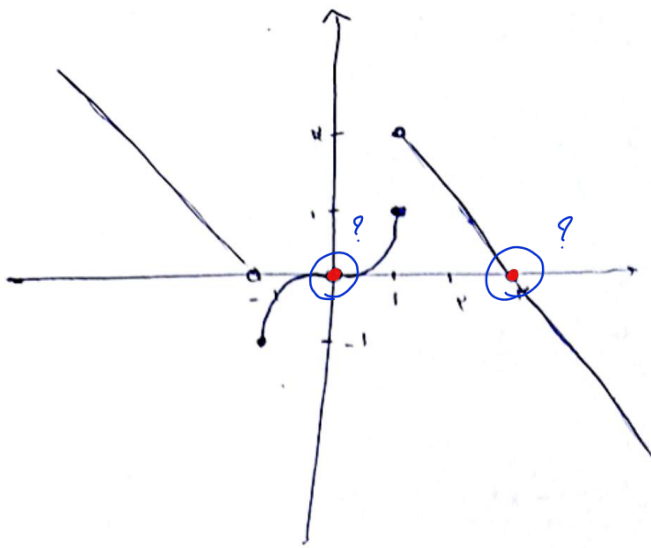
$0 \leq a < 2\pi$

(۲) -۴



$f(x) = \begin{cases} -2x + 4 & x > 1 \\ x^2 & -1 < x < 1 \\ x + 1 & x < -1 \end{cases}$

اول-تقریباً
 نیستند
 $y = -2x + 4 \{x > 1\}$
 $y = x^2 \{-1 < x < 1\}$
 $y = x + 1 \{x < -1\}$



$$\begin{cases} -n+3 & n > 1 \\ n & -1 \leq n \leq 1 \\ -n-1 & n < -1 \end{cases}$$

نقطه توقفی $y = -n+3$ $n > 1$

$y = n^3$ $-1 \leq n \leq 1$

نقطه توقفی $y = -n-1$ $n < -1$

نقطه توقفی $(-1, 0)$

الف) $(n-2)(n-3)(n-4) = 0$
 $\boxed{n=2}$ $\boxed{n=3}$ $\boxed{n=4}$

$$\Rightarrow \frac{2}{-} \frac{3}{+} \frac{4}{-}$$

-V
2

ب) $y = (n-2)(n-3)(n-4) = 0 \Rightarrow$
 $\boxed{n=2}$ $\boxed{n=3}$ $\boxed{n=4}$

$$\frac{2}{+} \frac{3}{-} \frac{4}{-}$$

ج) $y = (n-2)(n-4) = 0 \Rightarrow n=2, 4$
 $\boxed{n=2}$ $\boxed{n=4}$

$$\frac{2}{-} \frac{4}{+}$$

-A
1, 4

د) $y = \frac{(n-2)(n-4)}{(n-3)^2} = 0 \Rightarrow$
 $\boxed{n=2}$ $\boxed{n=4}$

$$\frac{2}{+} \frac{4}{-}$$

ه) $y = \frac{n^3 - 3n^2 + 2n}{n^3 - 3n^2 + 2n} = 0 \Rightarrow n^2(n-3) = 0 \Rightarrow$
 $\boxed{n=0}$ $\boxed{n=3}$

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

بازرسی
1

و) $y = \frac{(n-3)(n-4)}{(n-1)(n-2)} = 0 \Rightarrow$
 $\boxed{n=3}$ $\boxed{n=4}$

$$\frac{3}{+} \frac{4}{-}$$

ز) $y = \frac{n^3 - 3n^2 + 2n}{n^3 - 3n^2 + 2n} = 0 \Rightarrow$
 $\boxed{n=0}$ $\boxed{n=3}$

$$\frac{0}{-} \frac{3}{+}$$

بازرسی
1

ح) $y = \frac{n^3 - 3n^2 + 2n}{n^3 - 3n^2 + 2n} = 0 \Rightarrow$
 $\boxed{n=0}$ $\boxed{n=3}$

$$\Rightarrow \frac{0}{-} \frac{3}{+}$$

ط) $y = \frac{n^3 - 3n^2 + 2n}{n^3 - 3n^2 + 2n} = 0 \Rightarrow$
 $\boxed{n=0}$ $\boxed{n=3}$

$$\Rightarrow \frac{0}{+}, n \in \mathbb{R}$$

4.

10

$$100 - 1 \Rightarrow 99 \text{ ریسے ہا}$$