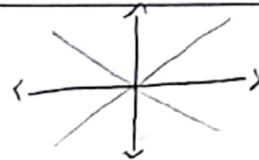


$$x^4 = x^2 + 3 \Rightarrow x^4 - x^2 + 3 = 0$$

$$\frac{x^2 \pm \sqrt{16 - 12}}{2} \Rightarrow x = \begin{cases} 3 \\ 1 \end{cases}$$

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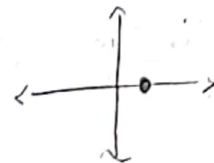
الف) $|y| = |x| \Rightarrow \begin{cases} y = x \\ y = -x \end{cases}$ $y = 1 \Rightarrow x = 1 \Rightarrow$ تابع نیست.



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ب) $|y| - \sqrt{x-1} = 0$

$y = 0 \Rightarrow \sqrt{x-1} = 0 \Rightarrow x = 1 \Rightarrow (1, 0)$ تابع است.



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الف) $x = 3 \sqrt{3-2} = 1 \Rightarrow |y-1| = 1 \Rightarrow y-1 = \begin{cases} -1 \Rightarrow y = 0 \\ 1 \Rightarrow y = 2 \end{cases}$

ب) $x = 0 \Rightarrow y^4 - y = 0 \Rightarrow y(y^3 - 1) = 0 \Rightarrow \begin{cases} y = 0 \\ y = 1 \end{cases} \Rightarrow (0, 0), (0, 1)$

ج) $x = 0 \Rightarrow \cos^2 \frac{y}{2} = 1 \Rightarrow y = \begin{cases} 0 = x \cos^2 0 = 1 \\ \pi = x \cos^2 \pi = 1 \end{cases} \Rightarrow (0, 0), (0, \pi)$

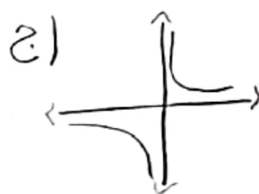
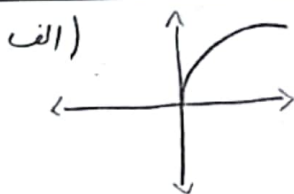
د) $2xy - x = 0 \Rightarrow x(2y-1) = 0 \Rightarrow \begin{cases} x = 0 \\ y = 1/2 \end{cases} \Rightarrow (0, 1/2)$

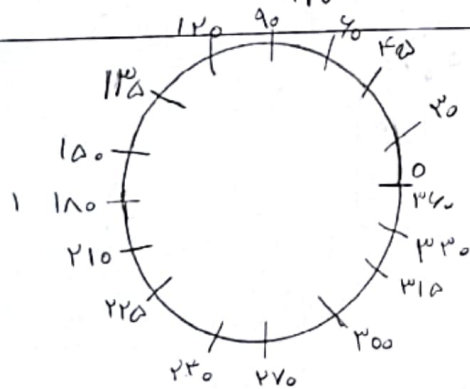
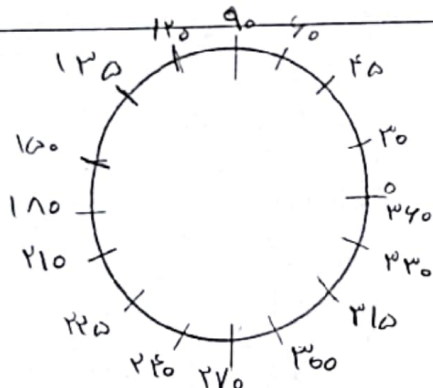
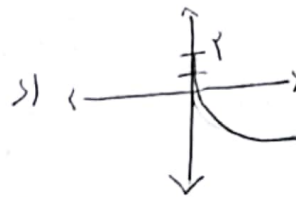
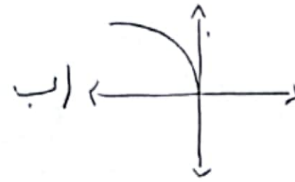
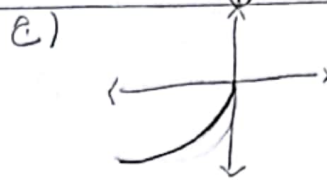
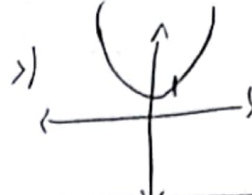
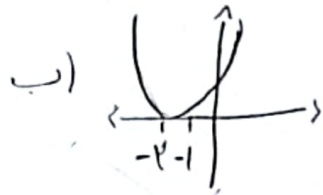
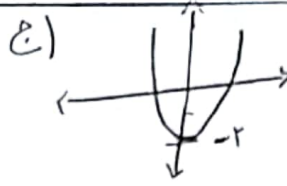
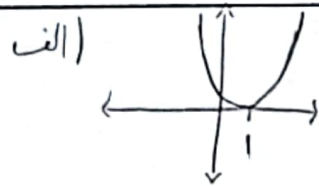
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الف) $|y-1| = x - x^2 \Rightarrow x - x^2 = \begin{cases} +(y-1) = y-1 \\ -(y-1) = -y+1 \end{cases}$ تابع نیست.

ب) $y^5 + 3x = 0 \Rightarrow y^5 = -3x \Rightarrow \sqrt[5]{y^5} = \sqrt[5]{-3x} \Rightarrow y = \sqrt[5]{-3x}$ تابع است.

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$$\begin{array}{llll}
 0 = 0 & 30 = \frac{\pi}{6} & 45 = \frac{\pi}{4} & 60 = \frac{\pi}{3} \\
 90 = \frac{\pi}{2} & 120 = \frac{2\pi}{3} & 135 = \frac{3\pi}{4} & 150 = \frac{5\pi}{6} \\
 180 = \pi & 210 = \frac{7\pi}{6} & 225 = \frac{5\pi}{4} & 240 = \frac{4\pi}{3} \\
 270 = \frac{3\pi}{2} & 300 = \frac{5\pi}{3} & 315 = \frac{7\pi}{4} & 330 = \frac{11\pi}{6} \\
 360 = 2\pi & & &
 \end{array}$$

الف) $\cos 120^\circ = -\frac{1}{2}$

ج) $\cos \frac{5\pi}{3} = \frac{1}{2}$

ب) $\sin 150^\circ = \frac{1}{2}$

د) $\sin \frac{11\pi}{6} = -\frac{1}{2}$