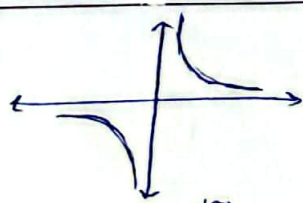
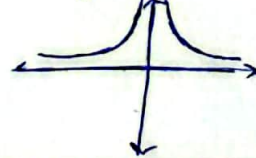
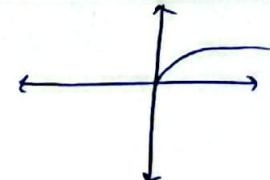
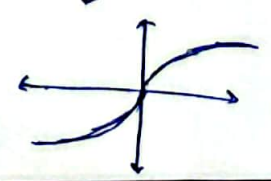


$fa = a^2 + 3$ $fa - a^2 - 3 = 0$ $-a^2 + fa - 3 = 0$ $-(a^2 - fa + 3) = 0$ $-(a-1)(+a-3) = 0 \Rightarrow \begin{cases} a=1 \checkmark \\ a=3 \checkmark \end{cases}$ $\begin{array}{l l} 4 \times 1 = 4 & 4 \times 3 = 12 \\ 1 + 3 = 4 & 9 + 3 = 12 \end{array}$	۱
$ y = x $ $y = \pm x$ تابع نیست  (الف) $y = 0$ $x - 1 = 0 \rightarrow x = 1$ تابع هست  (ب)	۲
$x = 3 \Rightarrow y-1 = \sqrt{3-2} \Rightarrow y-1 = 1 \Rightarrow \begin{cases} y-1=1 \rightarrow y=2 \\ y-1=-1 \rightarrow y=0 \end{cases}$ $(3, 2), (3, 0) \times$ $x=3$ (الف) $x = 0 \Rightarrow y^4 - y = 0 \Rightarrow y(y^3 - 1) = 0 \Rightarrow \begin{cases} y = 0 \\ y^3 - 1 = 0 \rightarrow y = \sqrt[3]{1} \end{cases}$ $(0, 0), (1, 1), (-1, -1) \times$ $y = \pm 1$ (ب) $x = 0 \Rightarrow \sin^2 \frac{y}{2} + \cos^2 \frac{y}{2} = 1 \Rightarrow \cos^2 \frac{y}{2} = 1 \Rightarrow \begin{cases} \cos \frac{y}{2} = 1 \rightarrow \frac{y}{2} = 0 \\ \cos \frac{y}{2} = -1 \rightarrow \frac{y}{2} = \pi \end{cases}$ $x = 0$ (ج) $(0, 0), (0, 2\pi) \times$ $x = 0 \Rightarrow y$ می تواند هر عددی باشد $(0, 1), (0, 2), (0, 3), \dots$ $x = 0$ (د)	۳
$4 + y-1 = 1 \rightarrow y-1 = 4 \rightarrow \begin{cases} y-1 = -4 \rightarrow y = -3 \\ y-1 = 4 \rightarrow y = 5 \end{cases}$ $(2, -3), (2, 5) \times$ $x=2$ (الف) $y^4 = -3x \rightarrow x_1 = x_2 \xrightarrow{x=3} -3x_1 = -3x_2 \Rightarrow y_1^4 = y_2^4 \Rightarrow y_1 = y_2$ (ب)	۴
 (ج)  (د)  (الف)  (ب)	۵

 	(الف) (ب)	٦
(ب) (ج)	(الف) (ب)	٧
		٨
		٩
الف) $\cos 120^\circ = -\frac{1}{2}$ ب) $\sin 150^\circ = \frac{1}{2}$ ج) $\cos \frac{5\pi}{6} = -\frac{\sqrt{3}}{2}$ د) $\sin \frac{11\pi}{6} = -\frac{1}{2}$		١٠