

$$f = \left\{ (1, 3), (1, 3 + a^2), (2, 2a) \right\}$$

$1 = 1 \quad a^2 = a^2 + 3$

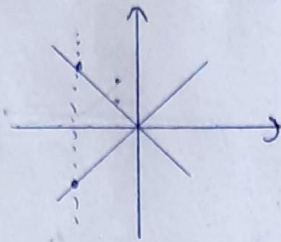
$$a^2 + 3 = 4a \quad a^2 - 4a + 3 = 0 \quad (a-3)(a-1) = 0 \quad \begin{cases} a-3=0 \Rightarrow a=3 \\ a-1=0 \Rightarrow a=1 \end{cases}$$

$a=1 \text{ و } 3$

$$|x| = |y| \quad \begin{cases} x=y \\ x=-y \end{cases}$$

تابع نیست

خط موازی محورهای مختصات را در ۲ نقطه قطع کرده

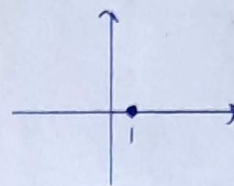


$$|y| = |x| \quad (\text{الف})$$

$$|y| + \sqrt{x-1} = 0$$

$$|y| + \sqrt{x-1} = 0 \quad (\text{ب})$$

$$\begin{cases} |y| = 0 \Rightarrow y = 0 \\ \sqrt{x-1} = 0 \Rightarrow x = 1 \end{cases} \quad (x=1, y=0 \text{ تنها نقطه مشترک})$$



تابع است

$$|y-1| = \sqrt{x-2}$$

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

تابع نیست

$$y^2 - y = \frac{x^2}{2}$$

$$x=0 \Rightarrow y^2 - y = 0 \Rightarrow y = 0$$

$$y = \begin{cases} 0 \\ -1 \end{cases}$$

تابع نیست

$$\sin^2 x + \cos^2 \frac{y}{2} = 1 \quad x=90^\circ \Rightarrow 1 + \cos^2 \frac{y}{2} = 1 \Rightarrow \cos^2 \frac{y}{2} = 0$$

$$\Rightarrow y = \begin{cases} 180^\circ \\ 360^\circ \end{cases} \quad (\text{ب})$$

تابع نیست

$$x^2 y = x$$

$$x=0 \Rightarrow 0 \times y = 0 \Rightarrow y \in \mathbb{R}$$

تابع نیست

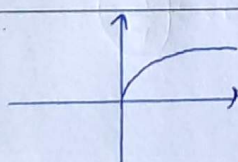
$$x^2 + |y-1| = 4x \quad |y-1| = 4x - x^2 \quad (\text{الف})$$

$$x=3 \Rightarrow |y-1| = 12-9 \Rightarrow |y-1| = 3 \Rightarrow y = \begin{cases} 4 \\ -2 \end{cases}$$

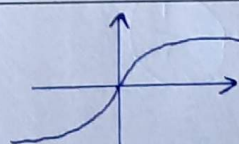
تابع نیست

$$y^2 + 2x = 0 \xrightarrow{x=y} y^2 + 2y = 0 \Rightarrow y = 0$$

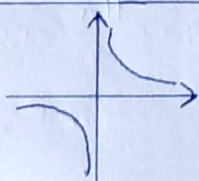
تابع است



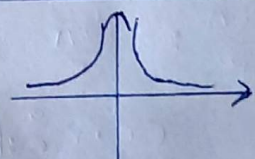
$$y = \sqrt{x} \quad (\text{الف})$$



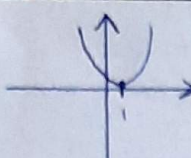
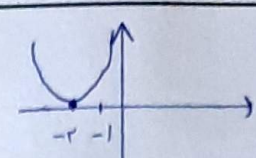
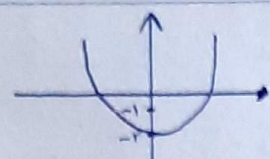
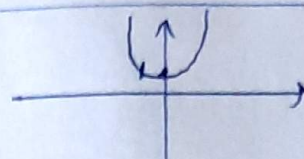
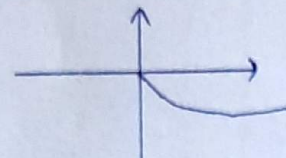
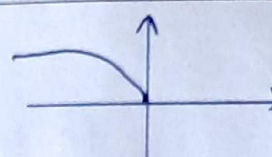
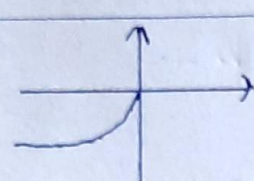
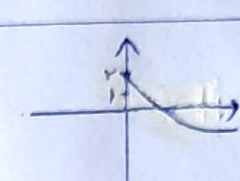
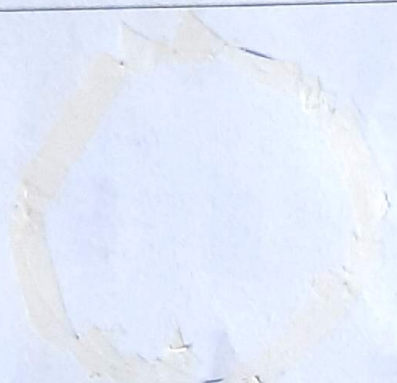
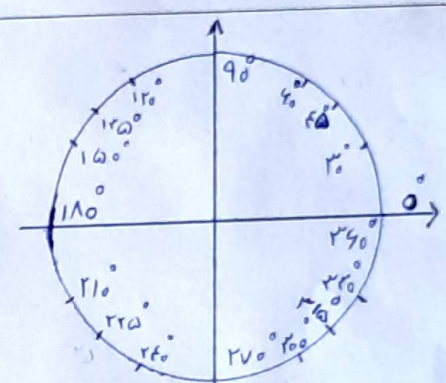
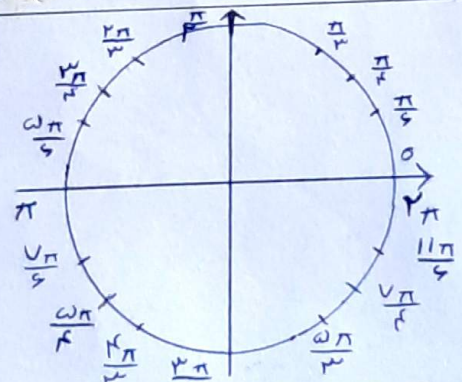
$$y = \sqrt{x} \quad (\text{ب})$$



$$y = \frac{1}{x} \quad (\text{ج})$$



$$y = \frac{1}{x} \quad (\text{د})$$

 $y = (x-1)^2$ (الف)	 $y = (x+1)^2$ (ب)	٦
 $y = x^2 - 2$ (ج)	 $y = x^2 + 1$ (د)	
 $y = -\sqrt{x}$ (الف)	 $y = \sqrt{x}$ (ب)	٧
 $y = -\sqrt{x+1}$ (ج)	 $y = -\sqrt{x-1}$ (د)	
		٨
		٩
الف) $\cos 180^\circ : \left(-\frac{1}{r}\right)$	ب) $\sin 180^\circ : \left(\frac{1}{r}\right)$	١٠
ج) $\cos \frac{\omega\pi}{r} : \frac{\omega\pi}{r} = 180^\circ$ $\cos 180^\circ : \left(-\frac{1}{r}\right)$	د) $\sin \frac{11\pi}{9} : \frac{11\pi}{9} = 180^\circ$ $\sin 180^\circ : \left(-\frac{1}{r}\right)$	