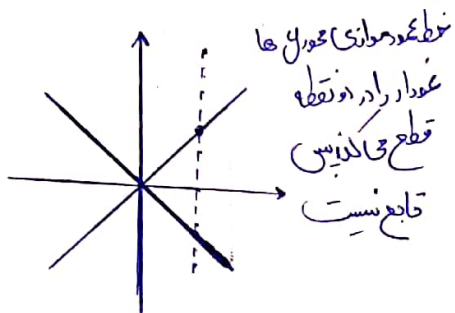


$$(1, 4a) = (1, a^2 + 3)$$

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

$$\hookrightarrow (a-3)(a-1) \begin{matrix} \swarrow a=3 \\ \searrow a=1 \end{matrix}$$

الف



$$y=0 \Rightarrow \sqrt{x-1} = 0 \Rightarrow x=1$$



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

$$\Rightarrow y-1=1 \Rightarrow y=2 \quad \text{تابع نیست}$$

$$y-1=-1 \Rightarrow y=0$$

$$y^2 - y = \frac{x^2}{4} \Rightarrow y^2 - y = 0$$

$$\Rightarrow y(y-1) = 0 \quad \begin{matrix} \text{تابع نیست} \\ \text{تابع نیست} \end{matrix}$$

$$\sin^2 x + \cos^2 x = 1 \Rightarrow \sin^2 x = 1$$

$$\cos^2 x = 1 \rightarrow \cos x = \pm 1 \Rightarrow x = 0, \pi, 2\pi, 3\pi, \dots$$

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

تابع نیست

الف

$$x^2 + (y-1)^2 = 4 \Rightarrow 1 + (y-1)^2 = 4$$

$$\Rightarrow (y-1)^2 = 3 \quad \text{تابع نیست}$$

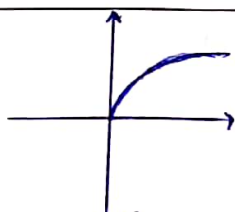
$$\hookrightarrow y-1 = \pm \sqrt{3} \Rightarrow y = 1 \pm \sqrt{3}$$

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

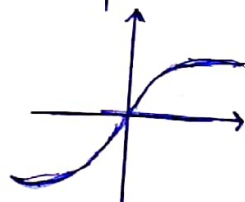
$$\begin{cases} y_1^2 = -3x_1 \\ y_2^2 = -3x_2 \end{cases} \xrightarrow{x_1 = x_2} y_1^2 = y_2^2$$

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

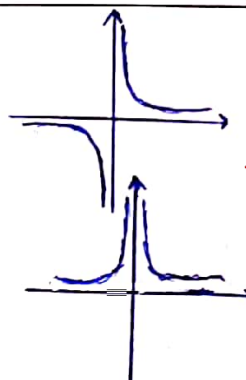
$$y = \sqrt{x}$$



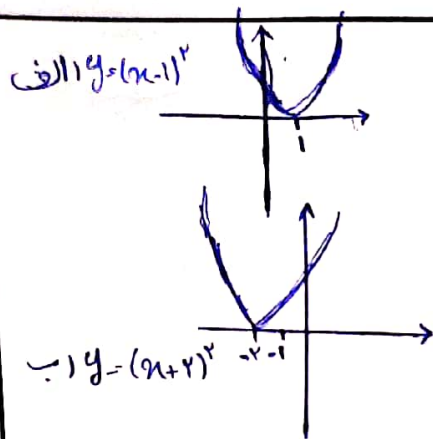
$$y = -\sqrt{x}$$



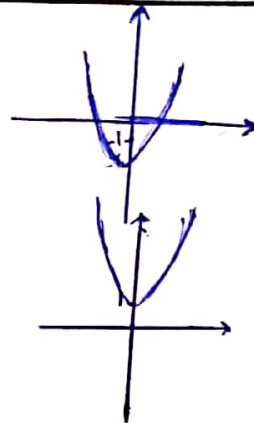
$$y = \frac{1}{x^2}$$



$$y = \frac{1}{x^2}$$

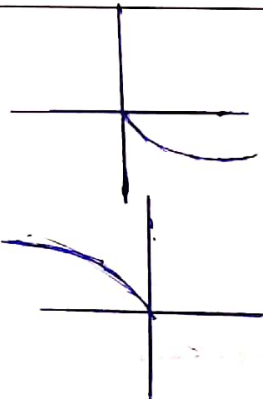


ج $y = x^2 - 2$

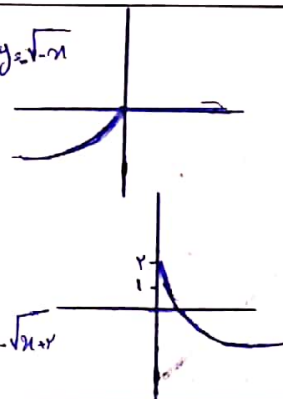


د $y = x^2 + 1$

الف $y = -\sqrt{x}$

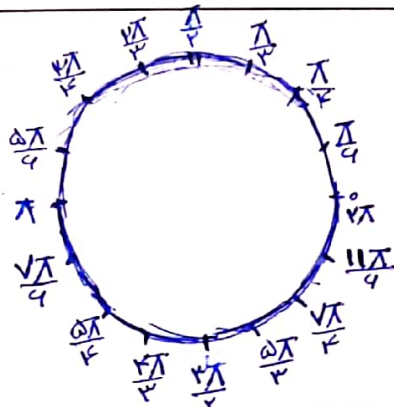
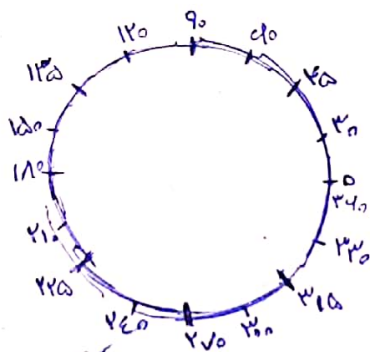


ج $y = \sqrt{-x}$



ب $y = \sqrt{-x}$

د $y = -\sqrt{x+2}$



الف $\cos 150^\circ = -\frac{1}{2}$

ج $\cos \frac{5\pi}{6} = -\frac{1}{2}$

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

ب $\sin 150^\circ = \frac{1}{2}$