

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

$$f_a = a^2 + 3$$

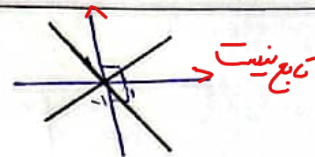
$$a^2 - f_a + 3 = 0$$

$$(a-1)(a-3) = 0$$

$$a = 1, 3$$

$$|y| = |x|$$

$$|y| = 2 \quad |y| = 1-3$$



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

$$x=1, y=0$$



تابع هست؟ نیست؟

$$|y-1| = \sqrt{x-2} \rightarrow x=4, y=1 \text{ or } y=3$$

$$y^5 - y = \frac{x^2}{2}$$

$$y^5 - y - \frac{x^2}{2} = 0$$

$$y^2(y-1) - \frac{x^2}{2} = 0$$

$$\sin^2 x + \cos^2 \frac{y}{2} = 1$$

$$2xy = x$$

$$x=0, y=R$$

$$x^2 + |y-1| = f(x)$$

$$x=1$$

$$1 + |y-1| = +2$$

$$|y-1| = 3 \rightarrow y-1 = \pm 3 \begin{cases} y=-2 \\ y=4 \end{cases}$$

$$y^5 + \cos x = 0$$

$$y = -3$$

$$y = \sqrt[5]{-3}$$

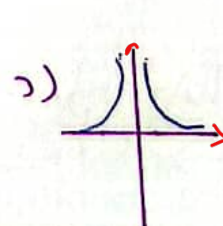
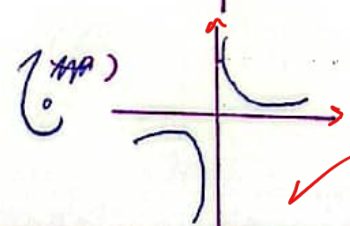
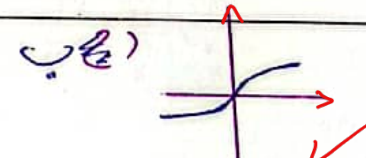
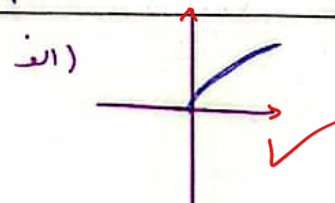
$$y^5 = 0, x=0$$

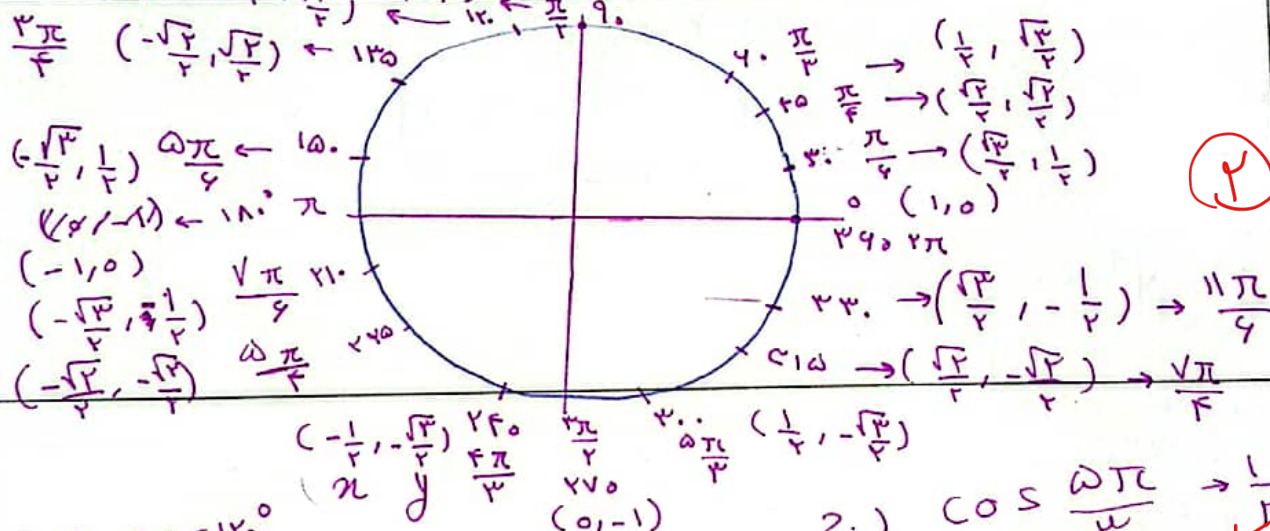
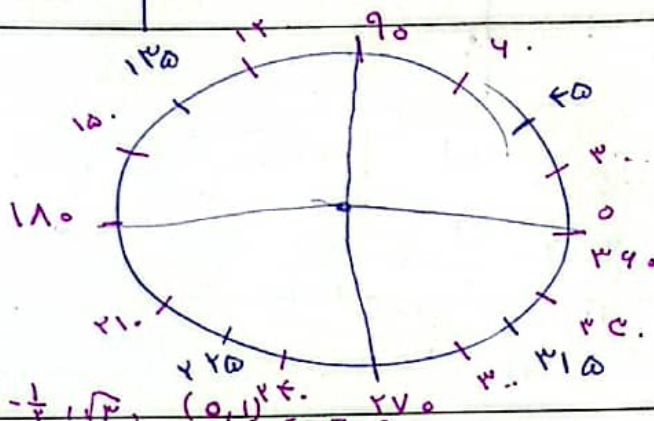
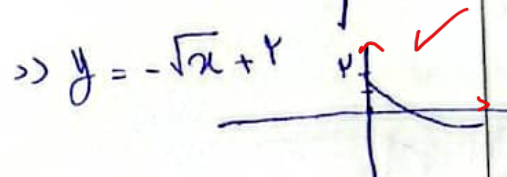
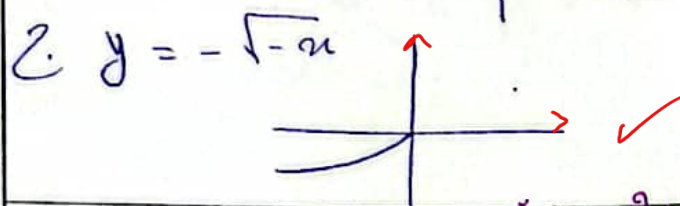
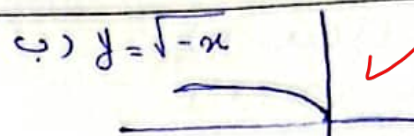
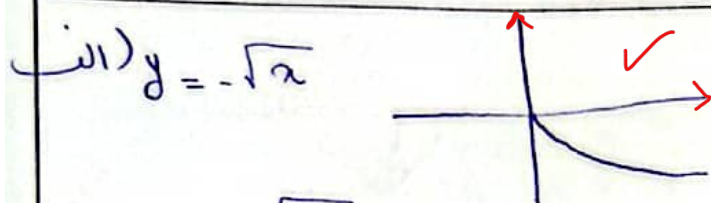
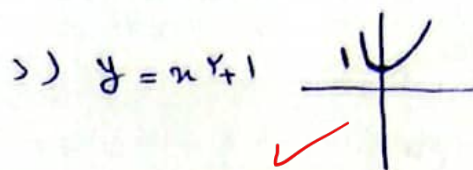
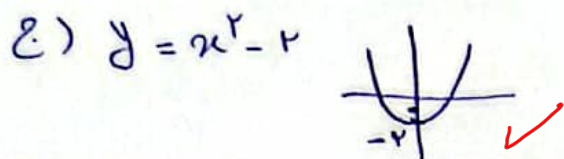
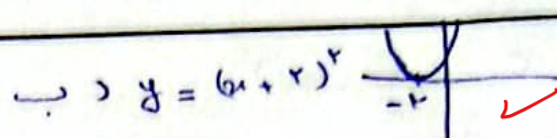
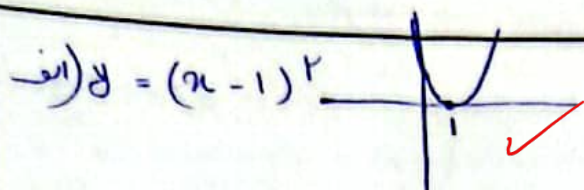
$$y = \sqrt[4]{x}$$

$$y = \sqrt[5]{x}$$

$$y = \frac{1}{x^3}$$

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





الف) $\cos 180^\circ = -1$

ب) $\sin 180^\circ = 0$

ج) $\cos 300^\circ = \frac{1}{2}$

د) $\sin 11\pi/9 = -1/2$

ج) $\sin^2 x + \cos^2 \frac{y}{2} = 1$

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

برای تابع بودن یا نبودن قرار شد
آن بلد بودیم نشان بدهیم

یا مثال نقض بزنیم (نقطه برای نشان دادن تابع نبودن!)

تقریباً ریاضی

ب) $y^5 + 3x = 0$ از تقریب ریاضی

$$\begin{cases} y_1^5 + 3x_1 = 0 \\ y_2^5 + 3x_2 = 0 \end{cases} \xrightarrow{x_1 = x_2} y_1^5 = y_2^5 \Rightarrow y_1 = y_2$$

تابع هست