

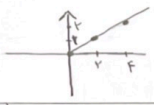
الف) $y^3 - x = 2x^2 \Rightarrow y^3 = 2x^2 - x \Rightarrow \begin{cases} y_1^3 = 2x_1^2 - x_1 \\ y_2^3 = 2x_2^2 - x_2 \end{cases} \Rightarrow y_1 = y_2 \Rightarrow x_1 = x_2$

ب) تابع نیست $|y| + x^2 \leq x + 3 \Rightarrow x = 0 \Rightarrow |y| = 3 \Rightarrow y = \pm 3$

ج) $\sqrt{x-4} + |y-2| = 0 \Rightarrow |y-2| = 0 \Rightarrow y = 2 \Rightarrow \sqrt{x-4} = 0 \Rightarrow x = 4$ فقط در این نقطه تعریف می شود

د) تابع نیست $x = \cos y \Rightarrow x = 0 \Rightarrow \cos y = 0 \Rightarrow y = 90, 270 \left(\frac{\pi}{2}, \frac{3\pi}{2} \right)$

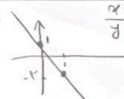
الف) $|y|$  $\Rightarrow y = K \Rightarrow y = 1$

ب) $|y| \Rightarrow y = ax + b$  $\begin{matrix} x & 0 & 1 & 2 \\ y & 0 & 2 & 4 \end{matrix}$

الف) $y = ax + b \xrightarrow{f(x)=x} y = x \Rightarrow a = 1, b = 0 \Rightarrow a \neq b = 1$

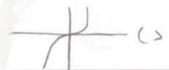
ب) $y = x^2 + ax + b \Rightarrow 1 = \frac{-a}{2 \cdot 1} \Rightarrow a = -2 \Rightarrow 1 = f - f'(x) + b$

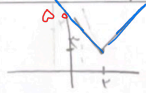
$a + 2b = -2 + 1 = -1$ $b = 0 \Rightarrow y = x^2 - 2x + 1$

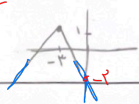
الف) $y = 2x + 1$  $\begin{matrix} x & 0 & 1 \\ y & 1 & 3 \end{matrix}$ (الف)  $\begin{matrix} x & 0 & 1 \\ y & 1 & -1 \end{matrix}$ (ب)

ب) $y = -3x + 1$

ج) $y = x^2$  (ج)

د) $y = x^3$  (د)

الف) $y = |x-2| + 3$  ۵

ب) $-|x+3| + 1$  ۲

به عرض از مبدا توجه شود.

الف) $y = \frac{x+f}{x^2-fx} \Rightarrow x^2-fx \neq 0 \Rightarrow x(x-f) \neq 0 \Rightarrow x \neq 0, x \neq f \Rightarrow D: \mathbb{R} \setminus \{0, f\}$

ب) $y = \frac{x+f}{x^2-4x+4} = \frac{x+f}{(x-2)^2} \Rightarrow 49-4f = -1d \rightarrow \text{منه} \rightarrow x^2-4x+4 \neq 0 \Rightarrow D: \mathbb{R}$

ج) $y = \frac{x+f}{x^2-x+f} \Rightarrow \Delta = 1-4f = -1d \rightarrow x^2-x+f \neq 0 \Rightarrow D: \mathbb{R}$

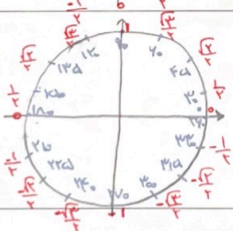
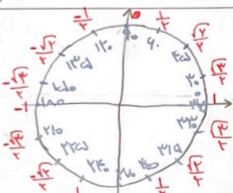
د) $y = \frac{x+f}{x^2-fx} \Rightarrow x^2-fx \neq 0 \Rightarrow x^2(x-f) \Rightarrow x^2(x-f)(x+f) \neq 0 \Rightarrow D: \mathbb{R} \setminus \{0, f, -f\}$

هـ) $y = \sqrt{4-x} + \sqrt{x-2} \Rightarrow 4-x \geq 0 \Rightarrow x \leq 4, x-2 \geq 0 \Rightarrow x \geq 2 \Rightarrow [2, 4] = D$

و) $y = \frac{x+1}{x^2+1} \Rightarrow x^2+1 \neq 0 \Rightarrow x^2 \neq -1 \Rightarrow D: \mathbb{R}$

ز) $y = \frac{\sqrt{x-f}}{x-f} = \frac{\sqrt{x-f}}{x-f} \Rightarrow x-f \neq 0 \Rightarrow x \neq f, x-f \geq 0 \Rightarrow x \geq f \Rightarrow [f, \infty) \cup \{f\} = [f, \infty)$

ح) $y = \frac{x-f}{|x|+x^2} \Rightarrow |x|+x^2 \neq 0 \Rightarrow x \neq 0 \Rightarrow D: \mathbb{R} \setminus \{0\}$



الف) $-\cos \frac{\pi}{4} = +\frac{1}{4} \Rightarrow \sin \frac{\pi}{4}, \sin \frac{\pi}{4}$

ب) $-\cos \frac{11\pi}{4} = -\frac{\sqrt{4}}{4} \Rightarrow \sin \frac{\pi}{4}, \sin \frac{\pi}{4}$