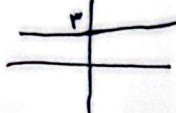


الف) تابع هست. $y^3 - x = 2x^2 \rightarrow \sqrt[3]{y^3} = \sqrt[3]{2x^2 + x} \rightarrow y = \sqrt[3]{2x^2 + x}$

ب) $|y| + x^2 = x + 3 \rightarrow |y| = x + 3 - x^2 \rightarrow y = \pm(x + 3 - x^2)$ تابع نیست

ج) $\sqrt{x-4} + |y-2| = 0 \rightarrow \sqrt{x-4} = 0 \rightarrow x = 4$ و $|y-2| = 0 \rightarrow y = 2$ هر دو مثبت هستند و جواب ۰ است پس: تابع هست.

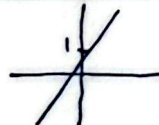
د) $x = \cos y \xrightarrow{\arccos} x = \frac{1}{y} \Rightarrow y = \frac{\pi}{x}, \frac{5\pi}{x}, \dots$ تابع نیست

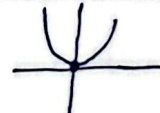
الف) $y = 3$ 

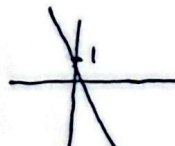
ب) $y - y_1 = m(x - x_1) \rightarrow y - 1 = 2(x - 2) \rightarrow y - 1 = 2x - 4 \rightarrow \boxed{y = 2x - 3}$ 

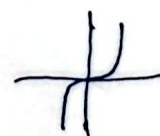
الف) $y = x \rightarrow \begin{cases} ax + b = x \\ a + 2b = 1 \end{cases} \rightarrow \begin{cases} a + 2b = 1 \\ a + 2b = 1 \end{cases} \rightarrow a + 2b = 1 \rightarrow 1 + 2(0) = 1$

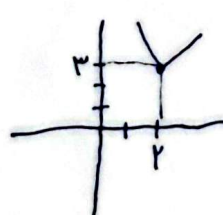
ب) ~~.....~~ $\begin{cases} 2 = \frac{a}{1} \rightarrow a = 2 \\ 1 = \frac{-b}{2a} \end{cases} \Rightarrow -2 = -b \rightarrow b = 2$ $\boxed{a + 2b} \rightarrow -4 + 2(2) = 0$

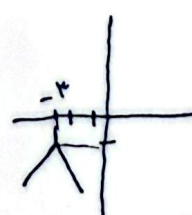
الف) 

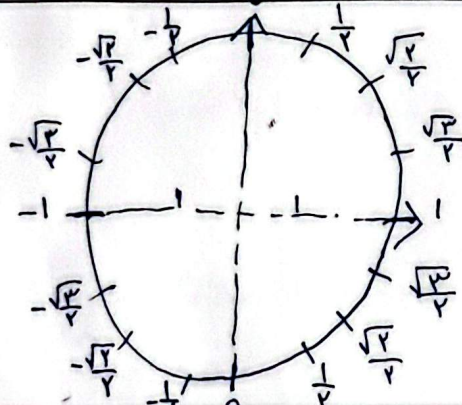
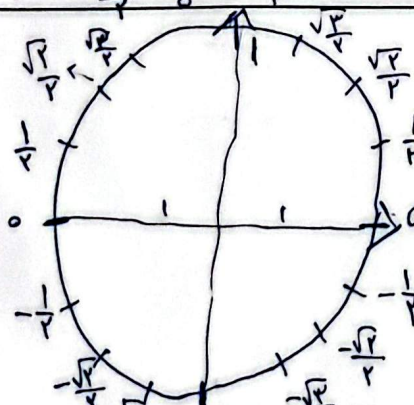
ج) 

ب) 

د) 

الف) 

ب) 

الف) $\frac{x+f}{x^2-fx} \rightarrow x(x-f) \neq 0 \rightarrow \begin{matrix} x \neq 0 \\ x \neq f \end{matrix}$ $D = \mathbb{R} - \{0, f\}$	ج) $x^2 + x + f \rightarrow \Delta = 1 - 4f$ $ID = \mathbb{R}$	
ب) $\frac{x+f}{x^2 - vx + 1} \rightarrow \Delta = (-v)^2 - 4(1)(1) = v^2 - 4$ $\Delta = 0 \rightarrow v = \pm 2$ $ID = \mathbb{R} - \{-2, 0, 2\}$	د) $x^2 - fx \rightarrow x^2(x-f)$ $x^2(x-f)(x+f) \neq 0$ $ID = \mathbb{R} - \{-f, 0, f\}$	٦
الف) $f - x \geq 0 \rightarrow x \leq f$ $x - 2 \geq 0 \rightarrow x \geq 2$ $\rightarrow 2 \leq x \leq f$ ب) $x^2 + 1 > 0$ $D = \mathbb{R}$	ج) $x - 2 \geq 0 \rightarrow x \geq 2$ $x - f \neq 0 \rightarrow x \neq f$ $D = [2, \infty) - \{f\}$ د) $x + x^2 = 0 \rightarrow D = \mathbb{R} - \{0\}$	٧
		٨
		٩
الف) $\cos \frac{7\pi}{9} = -\frac{1}{2} \rightarrow \frac{7\pi}{9}, \frac{11\pi}{9}$ ب) $\cos \frac{11\pi}{9} = \frac{\sqrt{3}}{2} \rightarrow \frac{5\pi}{9}, \frac{7\pi}{9}$		١٠