

الف) $y^2 - x = x^2 \Rightarrow y^2 = x + x^2 \Rightarrow y = \pm \sqrt{x + x^2}$ تابع است

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

ج) $\sqrt{x-4} + |y-2| \geq 0 \Rightarrow |y-2| \geq -\sqrt{x-4}$ تابع است

د) $x = \cos y \Rightarrow 0 = \cos y \Rightarrow y = \left\{ k\pi + \frac{\pi}{2} \right\} \cup \left\{ 90^\circ, 270^\circ, \dots \right\}$ تابع نیست

الف) $y = \frac{x+4}{x^2-4x} = \frac{x+4}{x(x-4)}$ $D_f = \mathbb{R} - \{0, 4\}$

ب) $y = \frac{x+4}{x^2-4x+4} = \frac{x+4}{(x-2)^2}$ $D_f = \mathbb{R}$

ج) $y = \frac{x+4}{x^2+x+4}$ $D_f = \mathbb{R}$

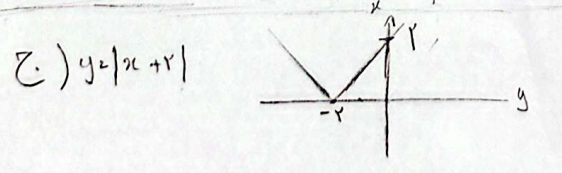
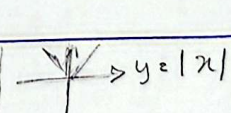
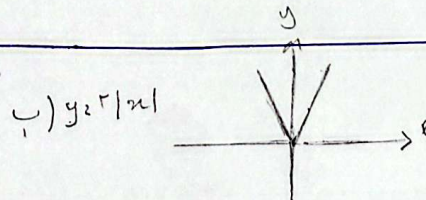
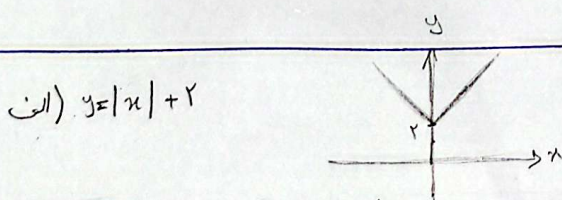
د) $y = \frac{x+4}{x^2-4x^2} = \frac{x+4}{x^2(1-x)} = \frac{x+4}{x^2(x-1)}$ $D_f = \mathbb{R} - \{0, 1, 2\}$

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

ب) $y = \frac{3x+1}{x^2+1}$ $D_f = \mathbb{R}$

ج) $y = \frac{\sqrt{x-2}}{x-4}$ $x-2 \geq 0 \Rightarrow x \geq 2$ $x \neq 4$ $D_f = [2, 4) \cup (4, +\infty)$

د) $y = \frac{2x+3}{|x|+x^2}$ $D_f = \mathbb{R} - \{0\}$



د) $y = |x+2| + 3$

