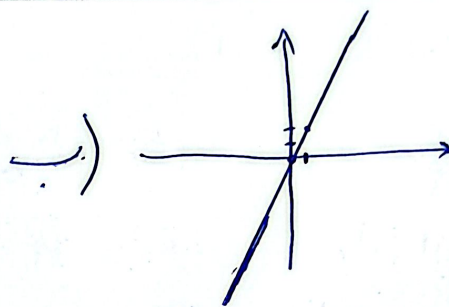
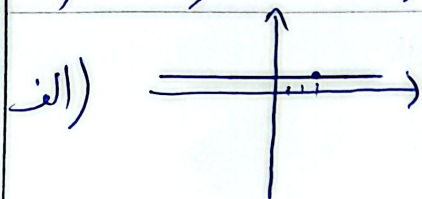


الف) تابع هست $\rightarrow y = \sqrt{2x^2 + x} \rightarrow y^2 = 2x^2 + x \rightarrow x^2 - x = 2x^2 \rightarrow x^2 - 2x^2 = x \rightarrow -x^2 = x \rightarrow x^2 + x = 0 \rightarrow x(x+1) = 0 \rightarrow x = 0, x = -1$

ب) تابع نیست $\rightarrow y = -5 \rightarrow y = 5$

ج) تابع هست $\rightarrow |x-2| + |y-2| = 0 \rightarrow x=2, y=2 \rightarrow |x-2| + |y-2| = 0$

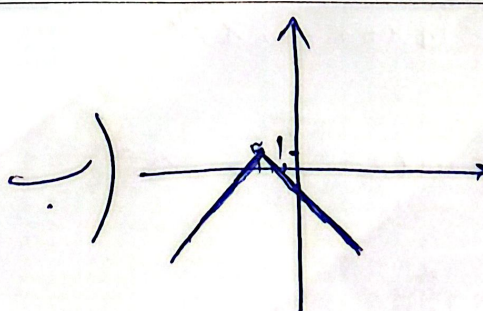
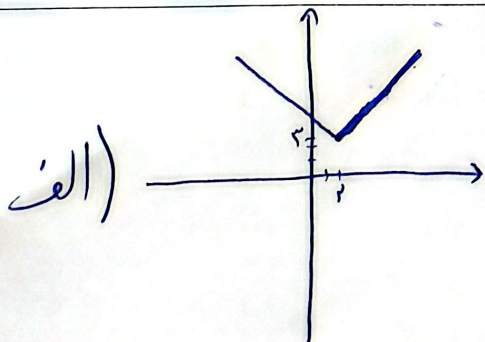
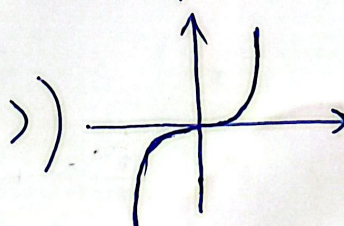
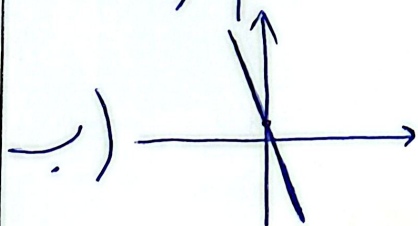
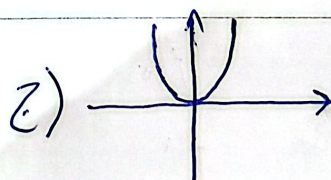
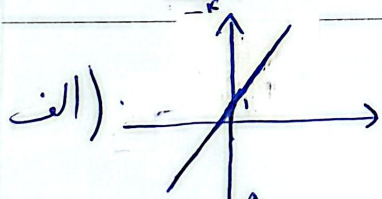
د) تابع نیست $\rightarrow x = \cos y \rightarrow x = 0 \rightarrow y = 90^\circ, y = 270^\circ$



الف) $y = ax + b \rightarrow y = x \rightarrow a = 1, b = 0 \rightarrow a + 2b = 1 + 2 \cdot 0 = 1$

ب) $y = x^2 + ax + b \rightarrow \frac{-a}{2} = 2 \rightarrow a = -4$

$1 = 2^2 - 4 \cdot 2 + b \rightarrow b = 0 \rightarrow a + 2b = -4 + 0 = -4$



الف) $y = \frac{x+1}{x^2-1} \rightarrow x^2-1 \neq 0 \rightarrow x \neq 0, 1 \rightarrow D_f = \mathbb{R} - \{0, 1\}$

ب) $y = \frac{x+1}{x^2-1} \rightarrow x^2-1 \neq 0 \rightarrow x \neq 0, 1 \rightarrow D_f = \mathbb{R}$

ج) $y = \frac{x+1}{x^2+1} \rightarrow x^2+1 \neq 0 \rightarrow x \neq 0, 1 \rightarrow D_f = \mathbb{R}$

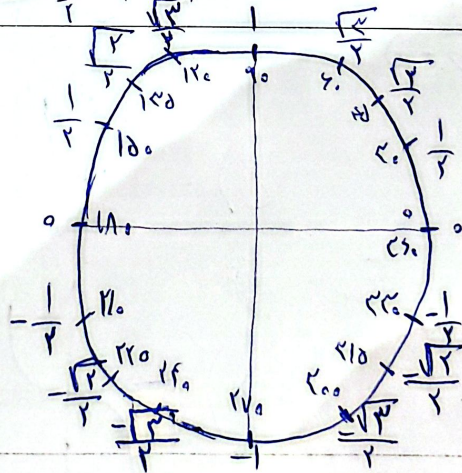
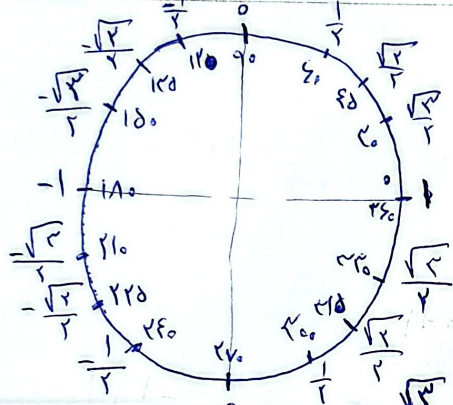
د) $y = \frac{x+1}{x^2-1} \rightarrow x^2-1 \neq 0 \rightarrow x \neq 0, 1 \rightarrow D_f = \mathbb{R} - \{0, 1\}$

الف) $y = \sqrt{6-x} + \sqrt{x-2} \rightarrow 6-x \geq 0, x-2 \geq 0 \rightarrow 2 \leq x \leq 6 \rightarrow D_f = [2, 6]$

ب) $y = \frac{x+1}{x^2+1} \rightarrow x^2+1 \neq 0 \rightarrow x \neq -1 \rightarrow D_f = \mathbb{R}$

ج) $y = \frac{\sqrt{x-1}}{x-1} \rightarrow x-1 \geq 0, x-1 \neq 0 \rightarrow D_f = [1, +\infty) - \{1\}$

د) $y = \frac{x+1}{|x|+x^2} \rightarrow |x|+x^2 \neq 0 \rightarrow x \neq 0 \rightarrow D_f = \mathbb{R} - \{0\}$



الف) $\cos \frac{\pi}{2} = 0 \rightarrow \sin x = 0 \rightarrow x = k\pi$

ب) $\cos \frac{\pi}{2} = \frac{\sqrt{2}}{2} \rightarrow \sin x = -\frac{\sqrt{2}}{2} \rightarrow x = \left\{ \frac{\pi}{2} + k\pi, \frac{3\pi}{2} + k\pi \right\}$