

تابع است $\Rightarrow y = \sqrt{2x^2 + x} \Rightarrow y^2 = 2x^2 + x \Rightarrow y^3 - x = 2x^2$ (الف)

تابع نیست $\Rightarrow y = \pm \sqrt{-x^2 + x + 3} \Rightarrow |y| = \sqrt{-x^2 + x + 3} \Rightarrow y^2 = -x^2 + x + 3 \Rightarrow x^2 - y^2 + x - 3 = 0$ (ب)

پس تابع است $\Rightarrow$ چون در دو عبارت مثبت است $\Rightarrow |y - 2| + \sqrt{x - 4} = 0$ (ج)
است پس به حالت دارد ۲ جمع صفر شود

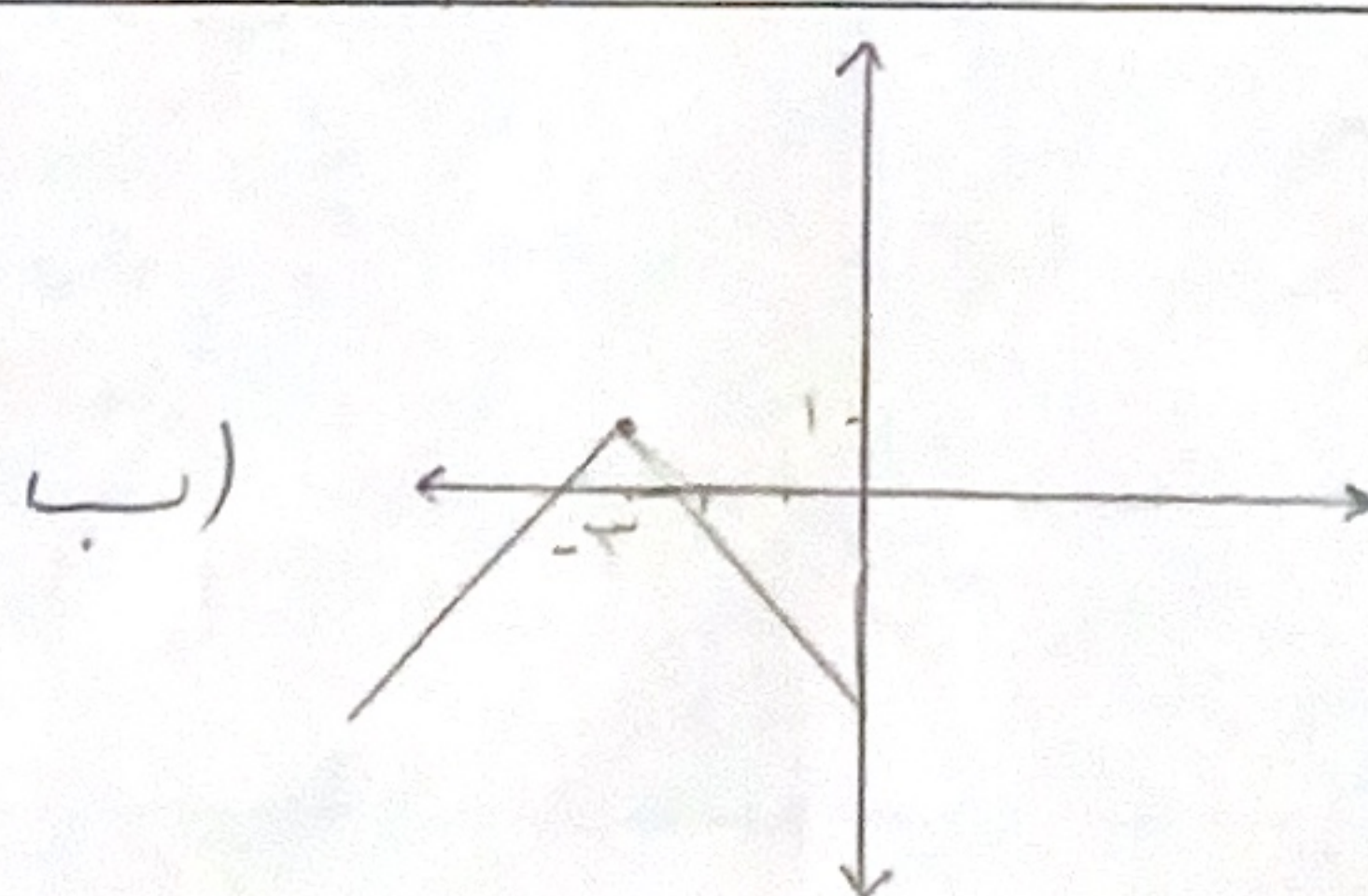
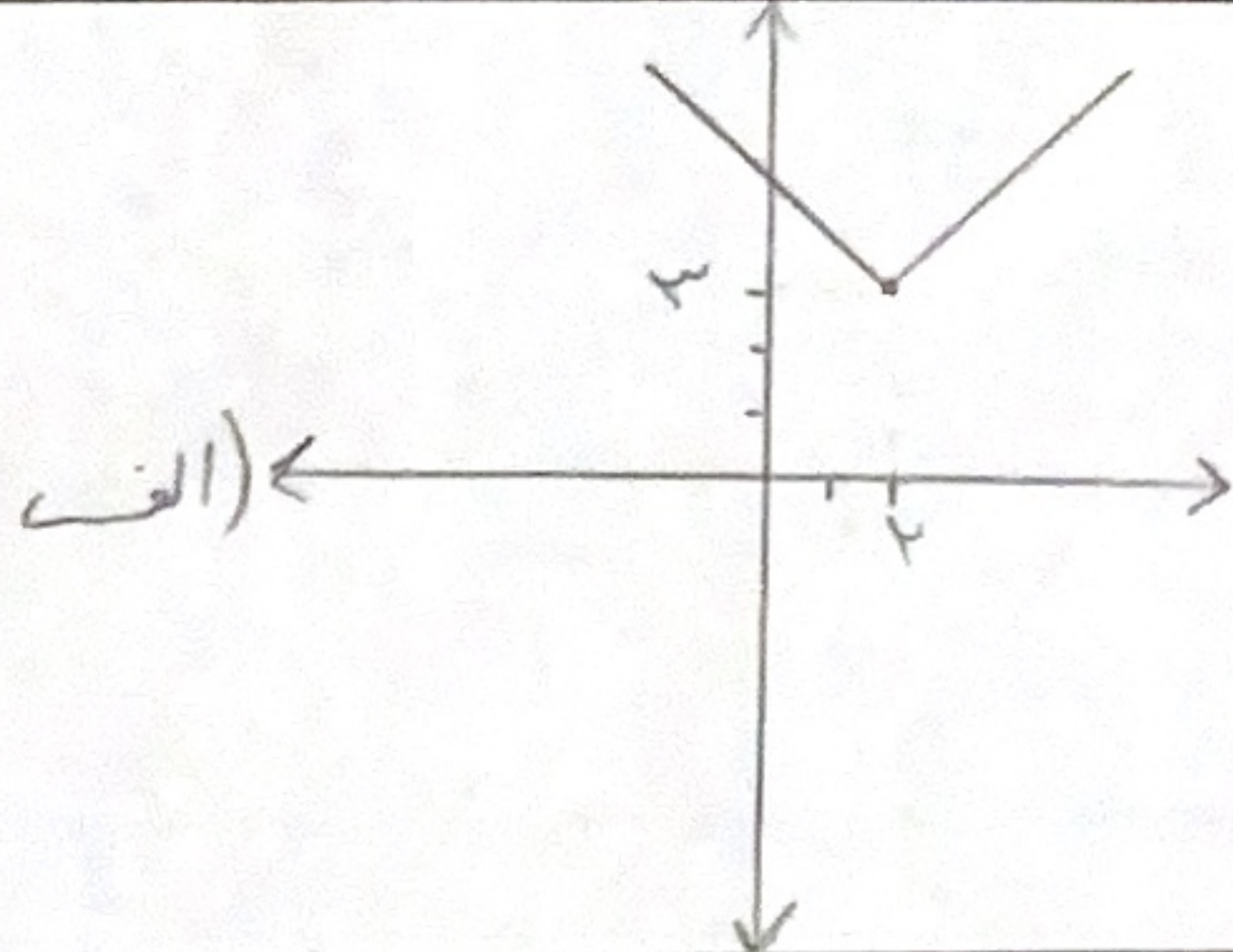
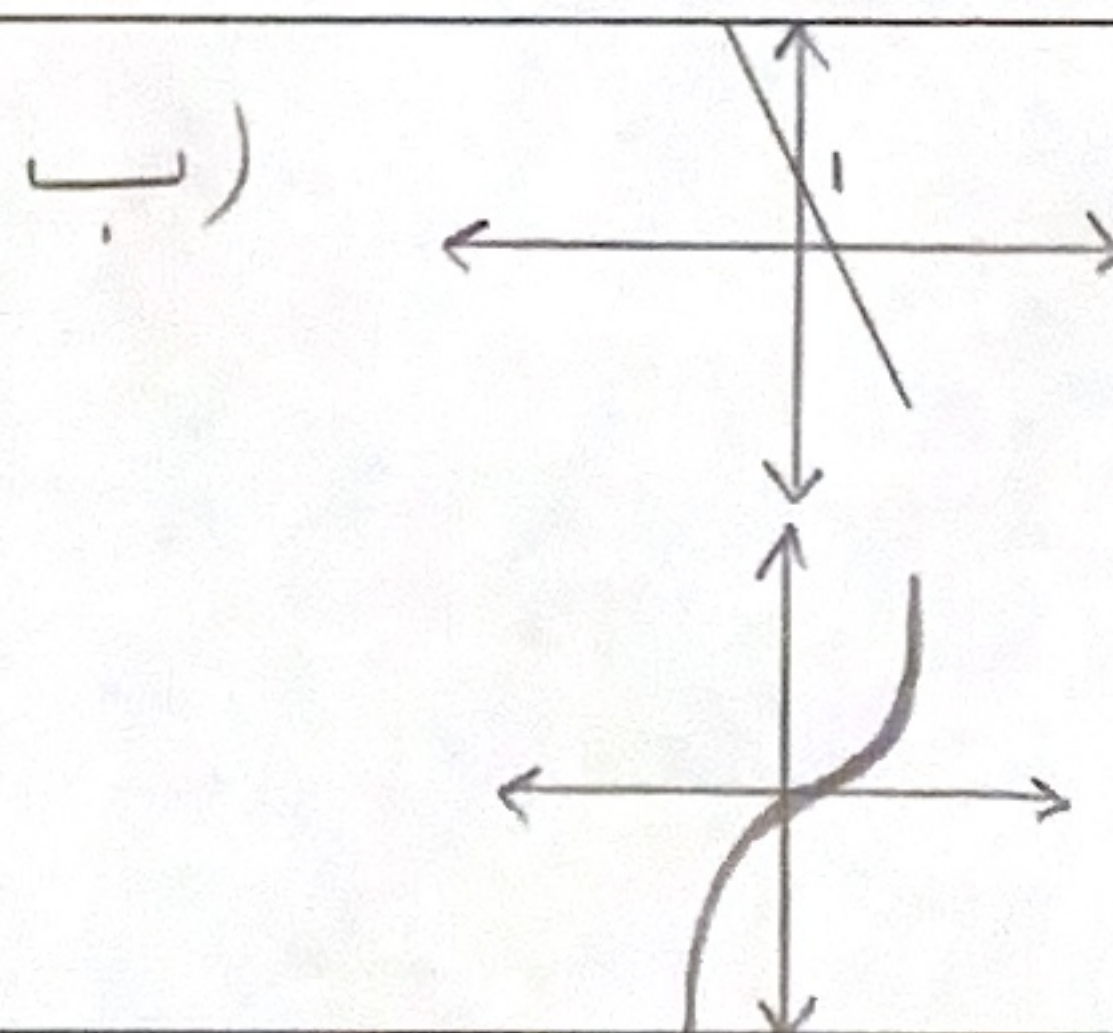
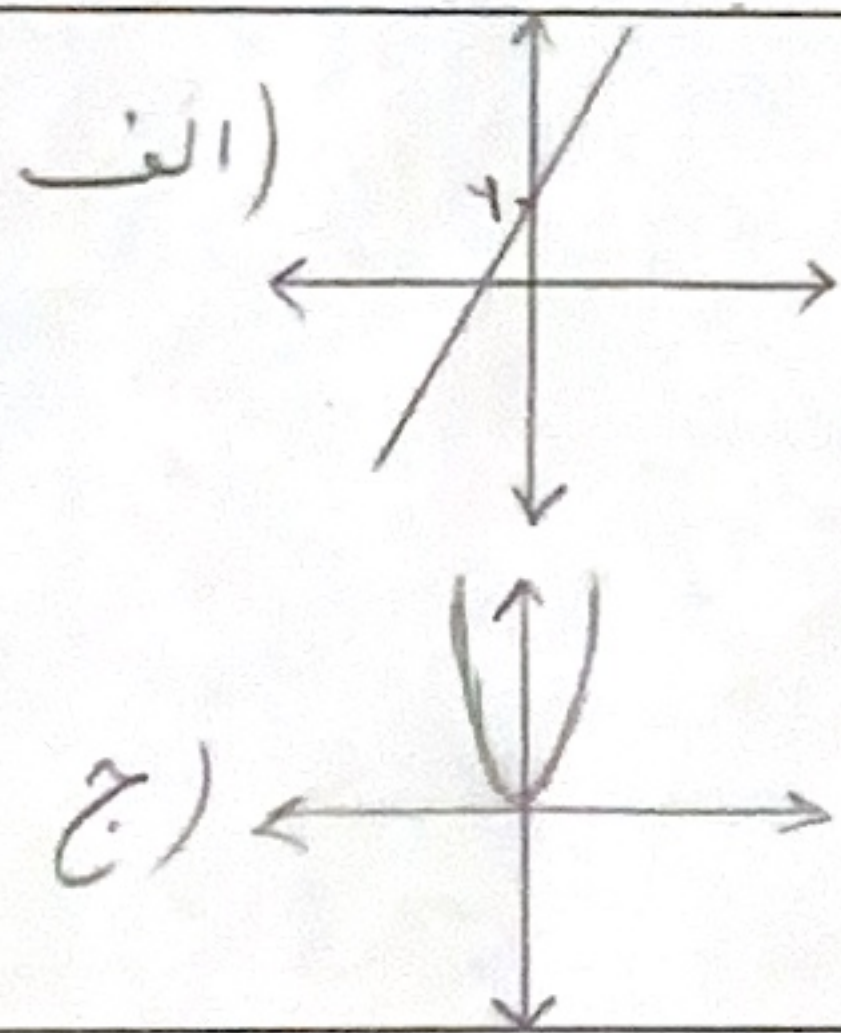
تابع نیست $\Rightarrow x = \cos y \Rightarrow x \in [-1, 1]$ (د)

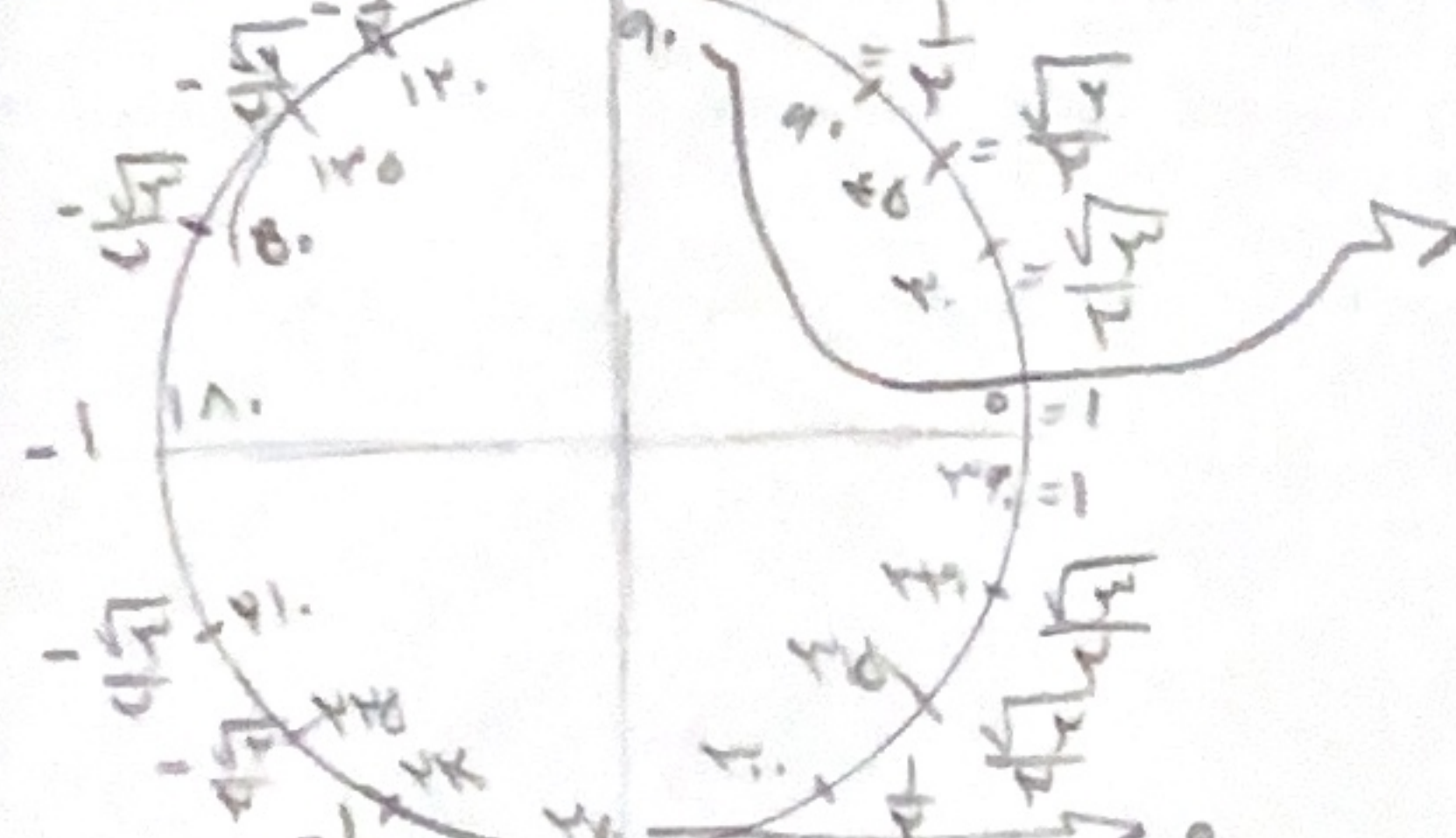
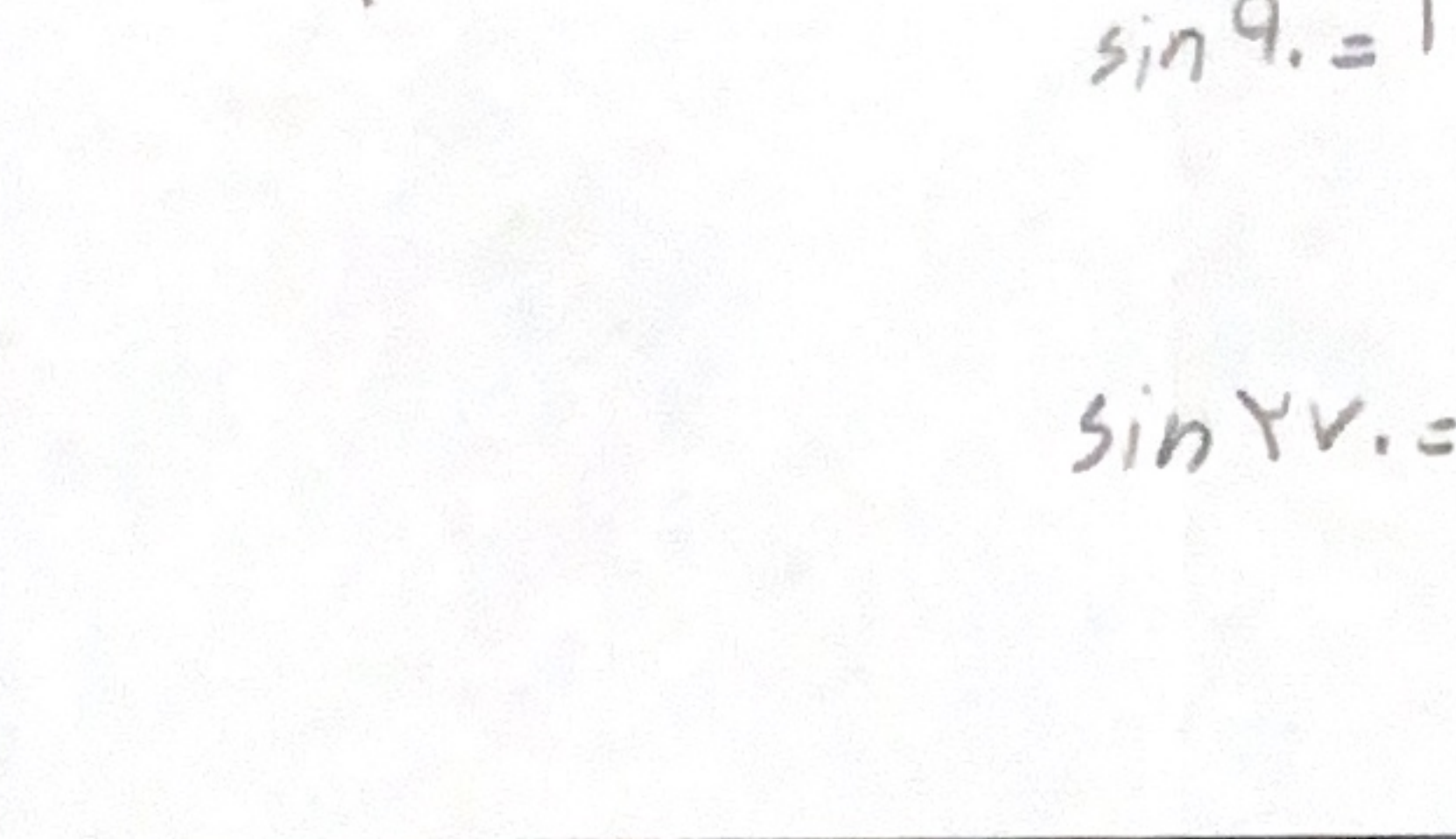
(الف) $f(x) = 1 \Rightarrow y = 1$

(ب) $y = ax + b \Rightarrow a = 2 \Rightarrow y = 2x + b$
 $\Rightarrow 1 = 2 + b \Rightarrow b = -1 \Rightarrow y = 2x - 1$

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

(ب) $\frac{x}{y} \Rightarrow x = -\frac{a}{b} \Rightarrow 2 = -\frac{a}{b} \Rightarrow a = -2b \Rightarrow a + 2b = -2b + 2b = 0$



الف) $\frac{x^2 + 4}{x^2 - 4x} \geq 0 \Rightarrow x^2 - 4x \geq 0 \Rightarrow x^2 - 4x + 0 \geq 0 \Rightarrow \frac{x + \sqrt{16}}{2} \geq 0 \Rightarrow \frac{x + 4}{2} \geq 0 \Rightarrow x \geq -4$ $\Rightarrow x \in \mathbb{R} - \{0, 4\}$ ب) $\frac{x^2 + 4}{x^2 - 4x + 4} \geq 0 \Rightarrow x^2 - 4x + 4 = 0 \Rightarrow$ ریشه ندارد $\Rightarrow x \in \mathbb{R}$ ج) $\frac{x^2 + 4}{x^2 + x + 4} \geq 0 \Rightarrow x^2 + x + 4 = 0 \Rightarrow$ ریشه ندارد $\Rightarrow x \in \mathbb{R}$ د) $\frac{x^2 + 4}{x^2 - 4x} \geq 0 \Rightarrow x^2 - 4x \geq 0 \Rightarrow (x + 2)(x - 2) \geq 0 \Rightarrow x \leq -2, x \geq 2 \Rightarrow x \in \mathbb{R} = \{x \mid x \leq -2 \text{ or } x \geq 2\}$	6
الف) $y = \sqrt{4-x} + \sqrt{x-2} \Rightarrow x-2 \geq 0 \Rightarrow x \geq 2$ $\Rightarrow 4-x \geq 0 \Rightarrow x \leq 4$ $\Rightarrow x \in [2, 4]$ ب) $\frac{3x+1}{x^2+1} \geq 0$ چون در صورتی است $\Rightarrow x \in \mathbb{R}$ ج) $\frac{\sqrt{x-2}}{x-4} \geq 0 \Rightarrow x-2 \geq 0 \Rightarrow x \geq 2$ $\Rightarrow x-4 > 0 \Rightarrow x > 4$ $\Rightarrow x \in (4, +\infty) - \{4\}$ د) $\frac{2x+3}{x+2} \geq 0 \Rightarrow x \in \mathbb{R} = \{x \mid x \geq -2\}$ چون در صورتی است	7
	8
 $\sin 90^\circ = 1$ $\sin 270^\circ = -1$	9
الف) $\cos \frac{5\pi}{4} = -\frac{1}{2} \Rightarrow \frac{1}{2} = \sin \frac{5\pi}{4} = \frac{1}{2}$ ب) $\cos \frac{11\pi}{4} = \frac{\sqrt{2}}{2} \Rightarrow -\frac{\sqrt{2}}{2} = \sin \frac{11\pi}{4} = -\frac{\sqrt{2}}{2}$	10