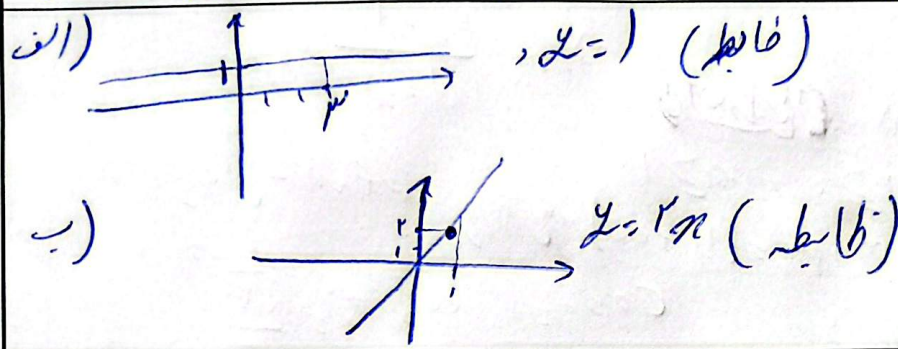
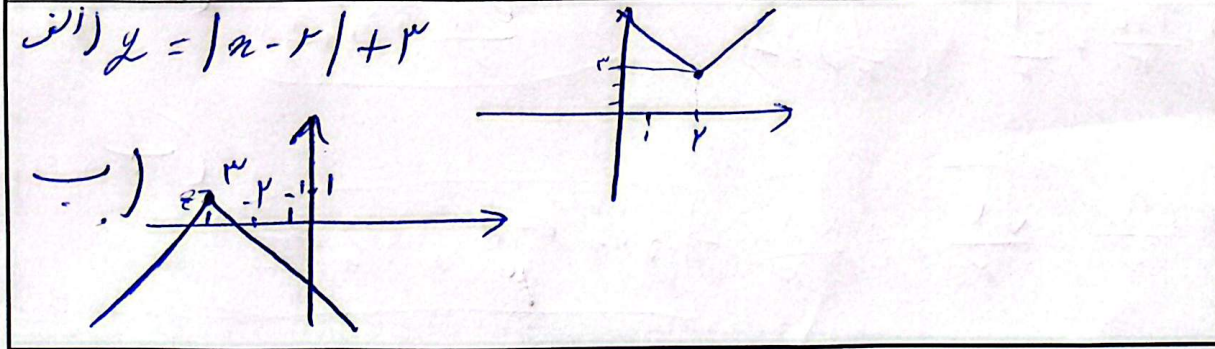
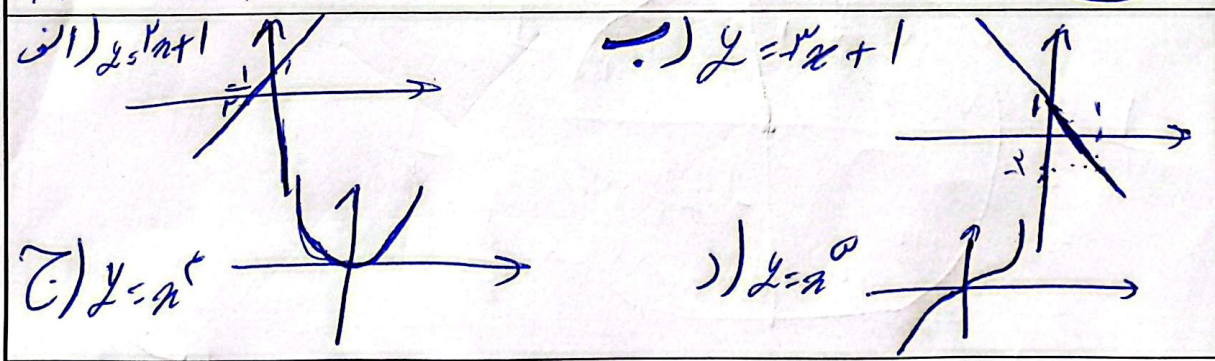


الف) $\begin{cases} x^3 = 2x^2 + a_1 \\ x^2 = 2ax^2 + a_2 \end{cases} \rightarrow \begin{cases} x_1 = a_1 \\ x_2 = a_2 \end{cases}$
 ب) $|x| + x^2 = a + 3 \rightarrow x^2 + x - a - 3 = 0 \rightarrow \Delta = 1 + 4(a+3) \geq 0 \rightarrow a \geq -\frac{13}{4}$
 ج) $\sqrt{x-4} + |x-2| = 0$ مجموعه جواب: $x=4$
 د) $x = \cos \theta \rightarrow \cos \theta = 0 \rightarrow \theta = \frac{\pi}{2}, \frac{3\pi}{2} \rightarrow x = \pm \frac{\pi}{2}$



الف) $y = ax + b$
 ب) $y = x^2 + ax + b$
 ج) $y = x^3$
 د) $y = x^4$

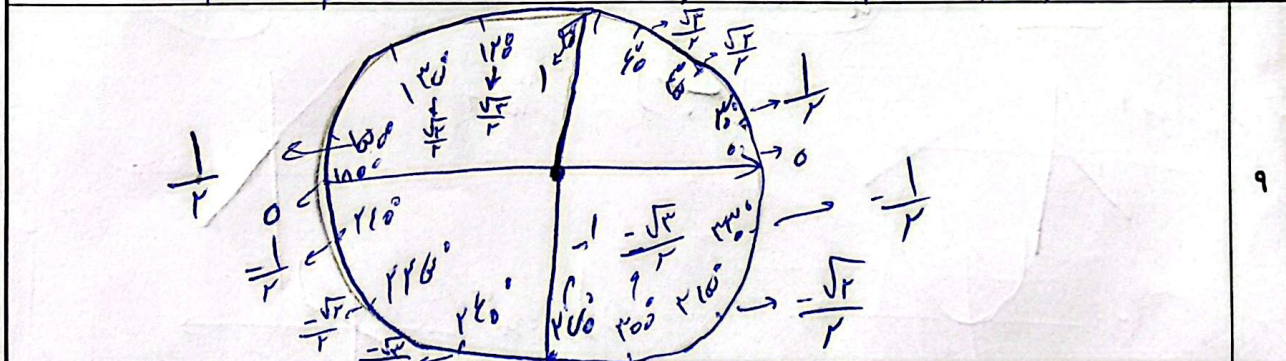
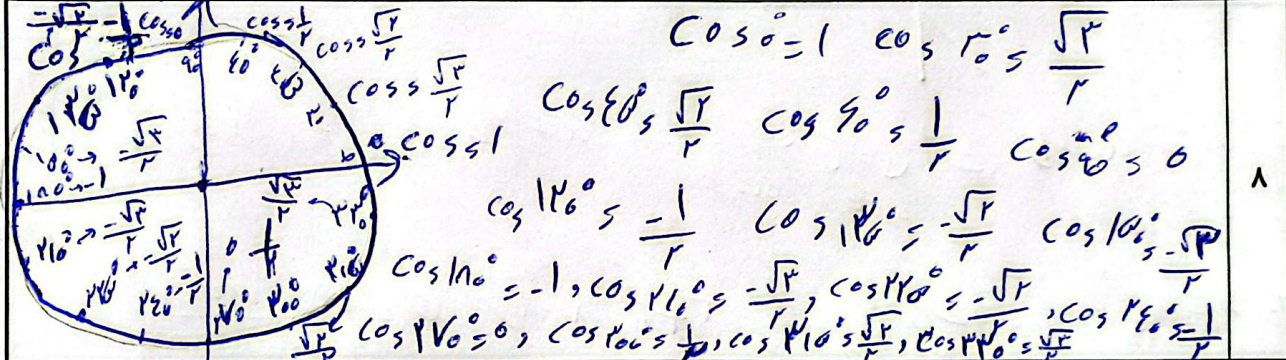


الف) $\frac{n+2}{n^2-4n}$ $Df = \mathbb{R} - \{0, 4\}$
 ب) $y = \frac{n+2}{n^2-4n+4} \rightarrow b^2-4ac < 0$ معواره نیست $n^2-4n+4 = 0 \Rightarrow n(n-4) \neq 0$

ج) $y = \frac{n+2}{n^2+4n+4} \rightarrow b^2-4ac > 0, a > 0$ معواره است $Df = \mathbb{R}$
 د) $y = \frac{n+2}{n^2-4n+4} \rightarrow a^2(n^2-4n+4) = 0$
 $n^2 \neq 0 \rightarrow n \neq 0, n^2-4n+4 \neq 0 \rightarrow n \neq 2, Df = \mathbb{R} - \{0, 2, 4\}$

الف) $y = \sqrt{4-n} + \sqrt{n-2}, 4-n \geq 0 \rightarrow n \leq 4, n-2 \geq 0 \rightarrow n \geq 2$
 $2 \leq n \leq 4, Df = [2, 4]$

ب) $y = \frac{2n+1}{n^2+1} \rightarrow Df = \mathbb{R}$ معواره است
 ج) $y = \frac{\sqrt{n-1}}{n-4} \rightarrow n-1 \geq 0 \rightarrow n \geq 1$
 $n \neq 4, Df = [1, +\infty) - \{4\}$
 د) $y = \frac{2n+3}{|n|+n^2}, n \neq 0$
 $Df = \mathbb{R} - \{0\}$



الف) $\cos \frac{2\pi}{3} = -\frac{1}{2}, -(-\frac{1}{2}) = \frac{1}{2} \rightarrow \sin \frac{5\pi}{6}, \sin \frac{\pi}{6}$

ب) $\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}, -\frac{\sqrt{3}}{2} \rightarrow \sin \frac{5\pi}{6}, \sin \frac{4\pi}{3}$