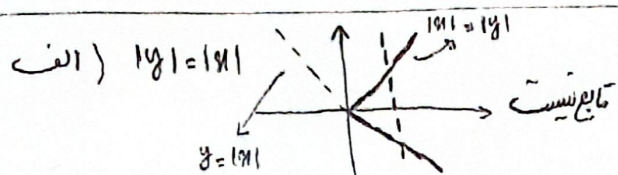


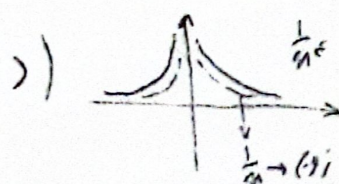
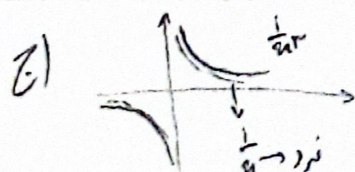
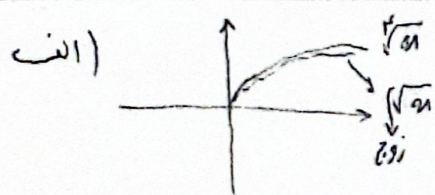
۱) $f = \{(1, 4\alpha), (1, \alpha^2 + 3), (2, 3\alpha)\}$ برآیند تابع بر روی مجموعه‌های اولی باشد $\Rightarrow 4\alpha = \alpha^2 + 3 \Rightarrow \alpha^2 + 3 - 4\alpha = 0 \Rightarrow$
 مولفه‌های دو تایی
 باید برابر باشد
 $(\alpha - 3)(\alpha - 1) = 0 \Rightarrow \alpha = 3$ یا $\alpha = 1$
 ۲) $4\alpha = \alpha^2 + 3 \Rightarrow 4\alpha - \alpha^2 - 3 = 0 \Rightarrow$ فاکتور ازشی $= -(\alpha^2 - 4\alpha + 3) = 0 \Rightarrow -(\alpha - 1)(\alpha - 3) = 0 \Rightarrow$
 $(-\alpha + 1)(\alpha - 3) = 0 \Rightarrow \alpha = 1$ یا $\alpha = 3$

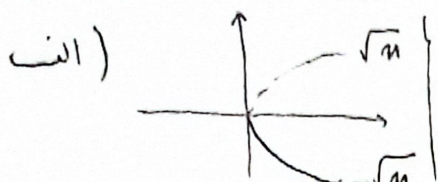
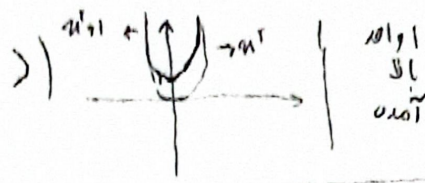
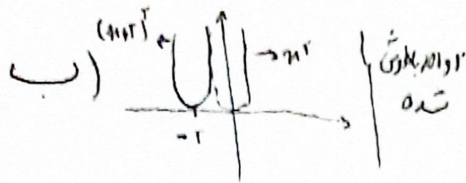
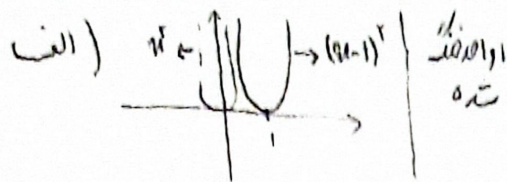


الف) $x = 0 \Rightarrow |y-1| = \frac{\sqrt{x-2}}{-2} \Rightarrow$ تقریب نشده $\Rightarrow x = 3 \Rightarrow |y-1| = 1 \Rightarrow (y-1) = \pm 1 \Rightarrow y = \{0, 2\}$
 ب) $x = 0 \Rightarrow y^5 - y = 0 \Rightarrow y(y^4 - 1) = 0 \Rightarrow y = 0$ یا $y = \pm 1 \Rightarrow y = \{0, 1, -1\}$
 ج) $\sin x = 0 \Rightarrow x = \{0, \pi, 2\pi, \dots\} \Rightarrow \cos \frac{x}{2} = 1 \Rightarrow \cos^2 \frac{x}{2} = 1 \Rightarrow \cos \frac{x}{2} = \pm 1 \Rightarrow \frac{x}{2} = \{0, \pi, 2\pi, \dots\} \Rightarrow x = \{0, 2\pi, 4\pi, \dots\}$
 د) $x = 0 \Rightarrow x^2 \times y = 0 \Rightarrow x^2 = 0 \times y = 0 \Rightarrow y = \mathbb{R} \Rightarrow x = 0 \Rightarrow y = \mathbb{R}$

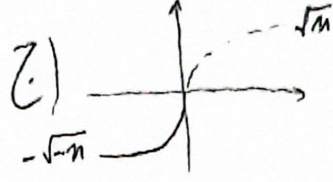
الف) $x^2 + |y-1| = 4x$ $x = 0 \Rightarrow |y-1| = 0 \Rightarrow y = 1$ $x = 1 \Rightarrow |y-1| = 3 \Rightarrow (y-1) = \pm 3 \Rightarrow y = \{4, -2\}$
 تابع نیست

ب) $y^5 + 3x = 0$ $y^5 = -3x$ $y = \sqrt[5]{-3x}$ $y_1 = y_2 \Rightarrow (y_1 = y_2)$ یک جواب دارد
 تابع هست
 $y_1 < 0 \Rightarrow y_2 < 0$ $y_1 > 0 \Rightarrow y_2 > 0$

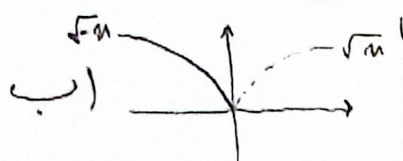




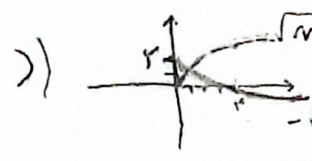
نبت
به محور
قرینه کنیم



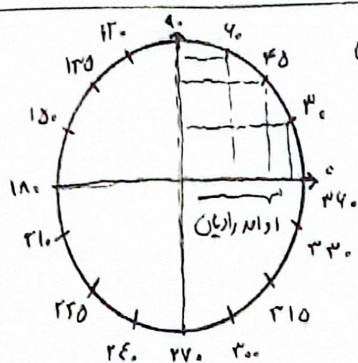
نبت به
محور
قرینه کنیم



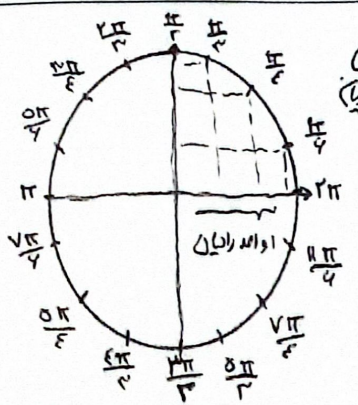
نبت به
محور
قرینه کنیم



نبت به
محور
قرینه کنیم



$\{0^\circ, 90^\circ, 180^\circ, 270^\circ\} = \{0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}\}$
 $\{30^\circ, 60^\circ, 120^\circ, 150^\circ, 210^\circ, 240^\circ, 300^\circ, 330^\circ\} = \{\frac{\pi}{6}, \frac{\pi}{3}, \frac{2\pi}{3}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{4\pi}{3}, \frac{5\pi}{2}, \frac{11\pi}{6}\}$
 $\{45^\circ, 135^\circ, 225^\circ, 315^\circ\} = \{\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}\}$
 $\{60^\circ, 120^\circ, 240^\circ, 300^\circ\} = \{\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}\}$
 $\{90^\circ, 180^\circ, 270^\circ, 360^\circ\} = \{\frac{\pi}{2}, \pi, \frac{3\pi}{2}, 2\pi\}$



$\{0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}\} = \{0, \frac{\pi}{2}, \pi, \frac{3\pi}{2}\}$
 $\{\frac{\pi}{6}, \frac{\pi}{3}, \frac{2\pi}{3}, \frac{5\pi}{6}, \frac{7\pi}{6}, \frac{4\pi}{3}, \frac{5\pi}{2}, \frac{11\pi}{6}\}$
 $\{\frac{\pi}{4}, \frac{3\pi}{4}, \frac{5\pi}{4}, \frac{7\pi}{4}\}$
 $\{\frac{\pi}{3}, \frac{2\pi}{3}, \frac{4\pi}{3}, \frac{5\pi}{3}\}$
 $\{\frac{\pi}{2}, \pi, \frac{3\pi}{2}, 2\pi\}$

الف) $\cos 120^\circ = -\frac{1}{2}$

ب) $\sin 180^\circ = 0$

ج) $\cos 300^\circ = \frac{1}{2}$

د) $\sin 210^\circ = -\frac{1}{2}$