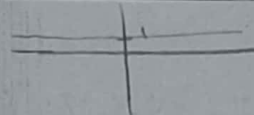


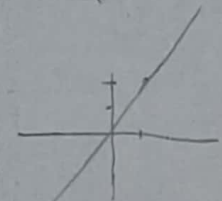
الف) $\left. \begin{array}{l} y_1 - x_1 = 2x_1 \\ y_2 - x_2 = 2x_2 \end{array} \right\} \Rightarrow x_1 = x_2 \Rightarrow y_1 = y_2 \Rightarrow y_1 = y_2$ تابع ✓

ب) $x=0 \rightarrow |y|=2 \Rightarrow y=\pm 2$ تابع ✗

ج) $x-2=0 \Rightarrow x=2 \Rightarrow y-2=0 \Rightarrow y=2$ تابع ✓

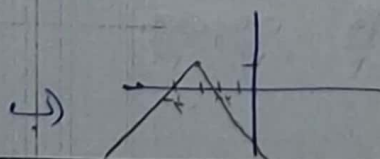
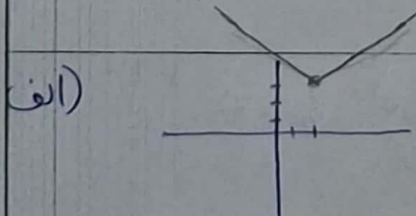
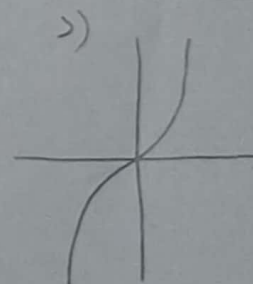
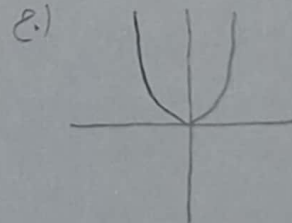
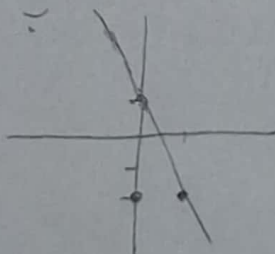
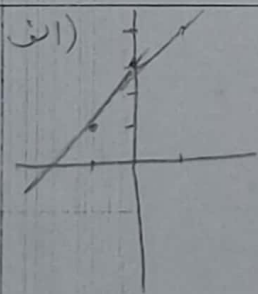
د) $x=0 \rightarrow \cos y=0 \Rightarrow y=\frac{\pi}{2}, \frac{3\pi}{2}$ تابع ✗

الف)  $f(x)=1$

ب)  $f(x)=2x$

الف) $y=x \quad x=ax+b \quad a=1 \quad b=0 \quad 1+0=1$

ب) $x = \frac{-a}{2} = -\frac{1}{2} \quad -a=1 \quad a=-1 \quad 1 = 1 - 1 + b \quad b=1 \quad -1+1=0$



$|x+2|=1$
 $x=-3$
 $x=-1$

الف) $x^2 - 4x + 4 = 0$ $\Delta = 16 - 16 = 0 \rightarrow$ نقطة واحدة $D = \{2\}$

ب) $x^2 - 7x + 12 = 0$ $\Delta = 49 - 48 = 1 \rightarrow$ نقطتان $D = \{3, 4\}$

ج) $x^2 + x + 1 = 0$ $\Delta = 1 - 4 = -3 \rightarrow$ لا توجد جذور حقيقية $D = \emptyset$

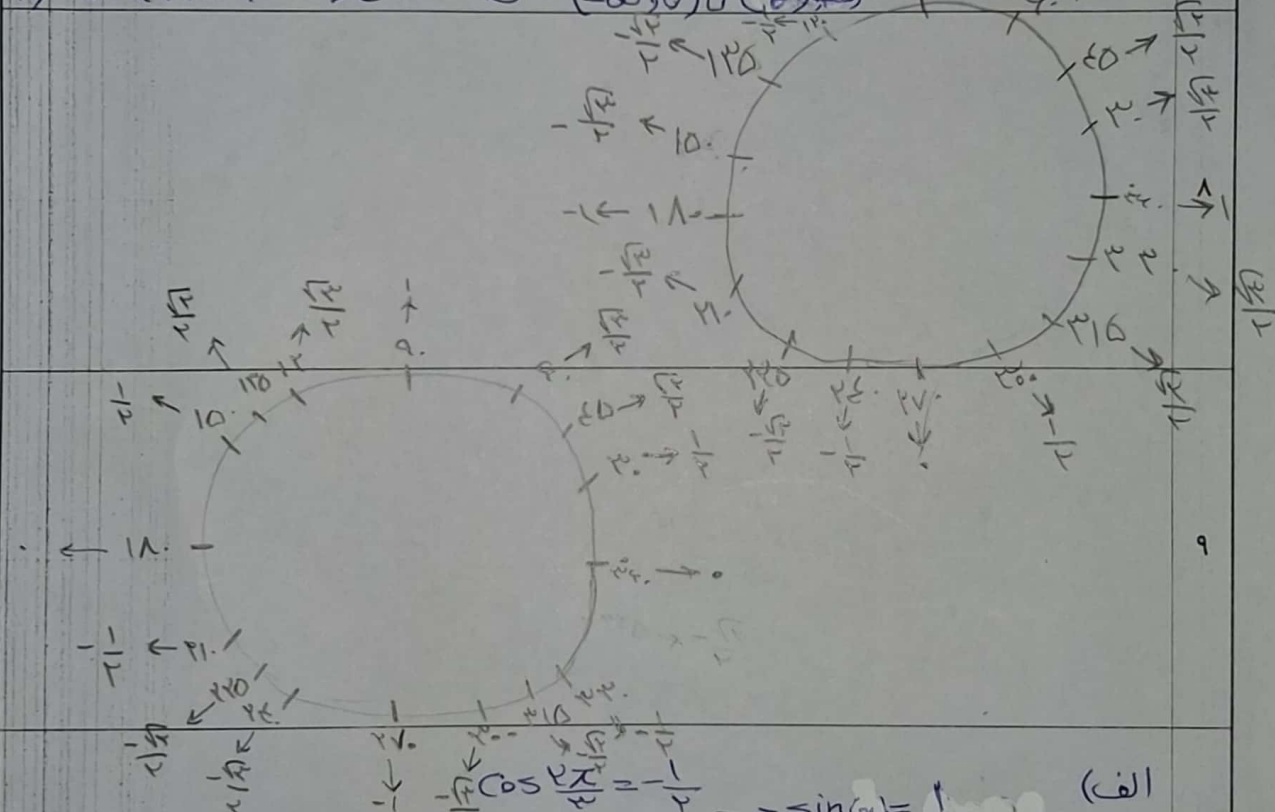
د) $x^2 - 4x + 4 \neq 0$ $x^2(x-4) \neq 0$ $x \neq 0$ $x \neq 4$ $D = \mathbb{R} - \{0, 4\}$

هـ) $\sqrt{4-x} + \sqrt{x-2} \geq 0 \Rightarrow x \leq 4$ $x-2 \geq 0 \Rightarrow x \geq 2$ $D = [2, 4]$

و) $x^2 \geq 0 \Rightarrow x^2 + 1 > 0$ $D = \mathbb{R}$

ز) $x-2 \geq 0 \Rightarrow x \geq 2$ $x-4 \neq 0$ $x \neq 4$ $D = [2, 4) \cup (4, +\infty)$

ح) $|x| + x^2 \neq 0$ $x \neq 0$ $D = (-\infty, 0) \cup (0, +\infty)$



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

ب) $\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2} \rightarrow \sin(x) = -\frac{\sqrt{3}}{2}$
 $\Rightarrow x = \frac{7\pi}{6}, x = \frac{11\pi}{6}$