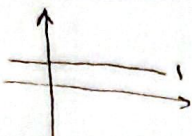


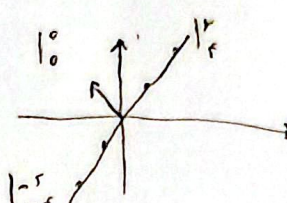
الف) $\begin{cases} y_1^2 = 2x_1^2 + x_1 \\ y_2^2 = 2x_2^2 + x_2 \end{cases} \xrightarrow{x_1=x_2} y_1^2 = y_2^2 \Rightarrow y_1 = y_2 \quad \begin{cases} y_1 > 0, y_2 > 0 \\ y_1 < 0, y_2 < 0 \end{cases}$ تابع همبسته

ب) $x=0 \Rightarrow |y|=3 \Rightarrow y=\pm 3$ یک جواب دارد. تابع همبسته

ج) $\sqrt{x-4} \geq 0, |y-2| \geq 0 \Rightarrow x=4 \Rightarrow y=2$ یک نقطه. تابع همبسته

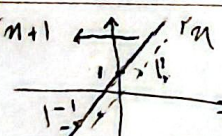
د) $x=0 \Rightarrow y=0$ یک جواب دارد. تابع همبسته

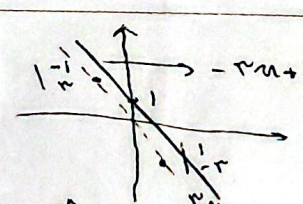
الف) $y=k \Rightarrow$  ۱

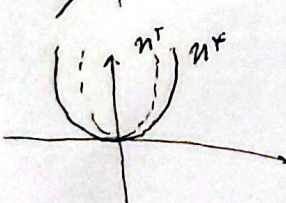
ب) $ax+by=y \Rightarrow a=x \mid \frac{1}{r} \Rightarrow y=rx$ 

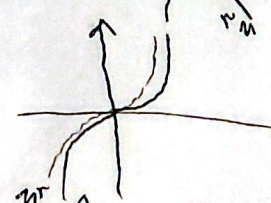
الف) $y=mx \Rightarrow y=ax+b \mid \begin{cases} a=1 \\ b=0 \end{cases} \Rightarrow 1+2x=1$

ب) $y=x^2+ax+b \Rightarrow \text{ext} \mid \begin{cases} -\frac{b}{2a}=2 \Rightarrow -b=4a \Rightarrow b=-4a \Rightarrow b=-4 \\ y=4+2a+b \Rightarrow 1=4+2a-4a \Rightarrow -2=-2a \Rightarrow a=1 \end{cases}$
 $\frac{5}{2}+2x-4 = \frac{5}{2}+(-12) = \frac{5-24}{2} = -\frac{19}{2}$

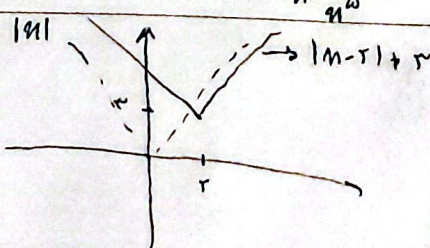
الف) 

ب) 

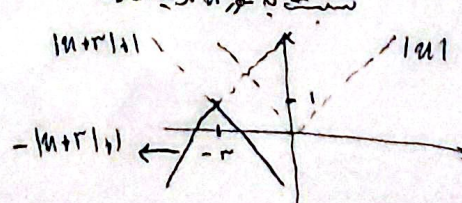
ج) 

د) 

الف) ۲ و ۳ همبسته شده
 ۱ و ۳ همبسته بالا رفته



ب) ۱ و ۳ با همبسته شده
 ۱ و ۲ بالا رفته
 ۲ و ۳ با همبسته شده



الف) $x^2 - 5x + 6 = 0 \Rightarrow x(x-2) = 0 \Rightarrow x = 0, 2 \Rightarrow D_f = \mathbb{R} - \{0, 2\}$

ب) $x^2 - \sqrt{49-4x} = 0 \Rightarrow \Delta = \frac{4 \pm \sqrt{49-4x}}{2} \Rightarrow$ ریشه ندارد $\Rightarrow D_f = \mathbb{R}$

ج) $x^2 + x + 5 = 0 \Rightarrow \Delta = \frac{1 \pm \sqrt{1-20}}{2} \Rightarrow$ ریشه ندارد $\Rightarrow D_f = \mathbb{R}$

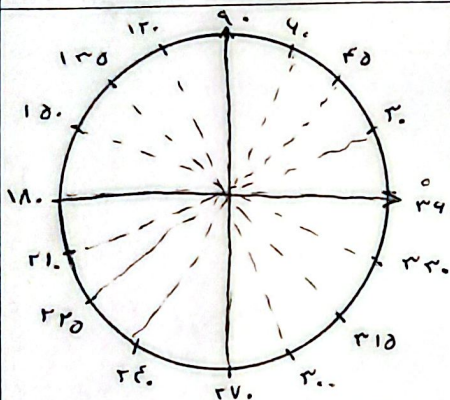
د) $x^2 - 5x^2 = 0 \Rightarrow x^2(1-5) = 0 \Rightarrow x = 0, 2 \Rightarrow D_f = \mathbb{R} - \{0, 2\}$

الف) $\sqrt{4-x} \geq 0, \sqrt{x-5} \geq 0 \Rightarrow x \leq 4 \wedge x \geq 5 \Rightarrow D_f = [5, 4]$

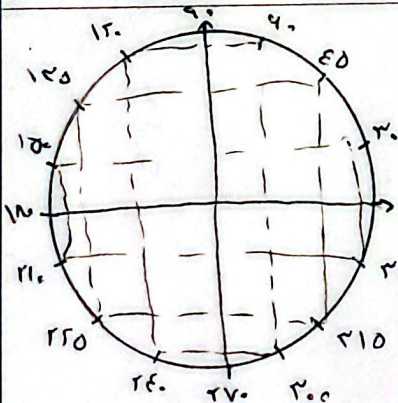
ب) $x^2 + 1 \neq 0 \Rightarrow x^2 > -1 \Rightarrow x^2 + 1 > 0 \Rightarrow x \in \mathbb{R} \Rightarrow D_f = \mathbb{R}$

ج) $x - 5 \neq 0 \Rightarrow x \neq 5 \Rightarrow D_f = \mathbb{R} - \{5\}$

د) $|x| + x^2 \neq 0 \Rightarrow |x| > 0, x^2 > 0 \Rightarrow x \in \mathbb{R} \Rightarrow D_f = \mathbb{R}$



$\cos 0^\circ = 1, \cos 30^\circ = \frac{\sqrt{3}}{2}, \cos 45^\circ = \frac{1}{\sqrt{2}}, \cos 60^\circ = \frac{1}{2}$
 $\cos 90^\circ = 0, \cos 120^\circ = -\frac{1}{2}, \cos 135^\circ = -\frac{1}{\sqrt{2}}, \cos 150^\circ = -\frac{\sqrt{3}}{2}$
 $\cos 180^\circ = -1, \cos 225^\circ = -\frac{1}{\sqrt{2}}, \cos 270^\circ = 0, \cos 315^\circ = \frac{1}{\sqrt{2}}$
 $\cos 360^\circ = 1, \cos 330^\circ = \frac{\sqrt{3}}{2}, \cos 300^\circ = \frac{1}{2}, \cos 270^\circ = 0$



$\sin 0^\circ = 0, \sin 30^\circ = \frac{1}{2}, \sin 45^\circ = \frac{1}{\sqrt{2}}, \sin 60^\circ = \frac{\sqrt{3}}{2}$
 $\sin 90^\circ = 1, \sin 120^\circ = \frac{\sqrt{3}}{2}, \sin 135^\circ = \frac{1}{\sqrt{2}}, \sin 150^\circ = \frac{1}{2}$
 $\sin 180^\circ = 0, \sin 225^\circ = -\frac{1}{\sqrt{2}}, \sin 270^\circ = -1, \sin 315^\circ = -\frac{1}{\sqrt{2}}$
 $\sin 360^\circ = 0, \sin 330^\circ = -\frac{1}{2}, \sin 300^\circ = -\frac{\sqrt{3}}{2}, \sin 270^\circ = -1$

الف) $\frac{2\pi}{3} = 120^\circ$ درازی $\Rightarrow \left| \frac{1}{\sqrt{3}} \right| \Rightarrow \cos = -\frac{1}{2} \Rightarrow$ قرینه $\Rightarrow \sin = \frac{1}{2} \Rightarrow x = \frac{\pi}{6}, \frac{5\pi}{6}$

ب) $\frac{11\pi}{4} = 315^\circ$ درازی $\Rightarrow \left| -\frac{\sqrt{2}}{2} \right| \Rightarrow \cos = -\frac{\sqrt{2}}{2} \Rightarrow$ قرینه $\Rightarrow \sin = \frac{\sqrt{2}}{2} \Rightarrow x = \frac{3\pi}{4}, \frac{5\pi}{4}$