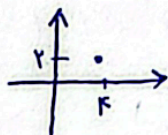
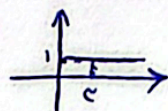
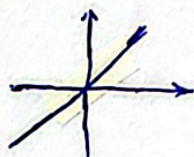


الف) $y^3 - x = 2x^2 \Rightarrow y^3 = 2x^2 + x \Rightarrow \begin{cases} y_1^3 = 2x_1^2 + x_1 \\ y_2^3 = 2x_2^2 + x_2 \end{cases} \xrightarrow{x_1=x_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2$ تابع
ب) $|y| + x^2 = x + 3 \xrightarrow{x=0} |y| = 3 \Rightarrow y = \pm 3$ تابع

ج) $\sqrt{x-4} + |y-2| = 0 \Rightarrow \begin{cases} x=4 \\ y=2 \end{cases}$ تابع است  $x = \cos y$ تابع نیست 



الف) $y = 1$

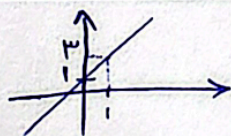


ب) $y = 2x$

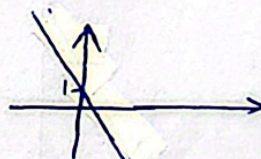
الف) $y = ax + b \xrightarrow[a=0]{a=1} y = x$ تابع همتا $a + 2b = 1$

ب) $y = x^2 + ax + b \xrightarrow[a=-4]{x=2} y = 4 + \cancel{-8} + b$ $a = -8$ $b = 3$ $a + 2b = -8 + 6 = -2$

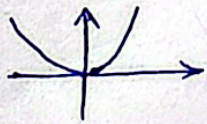
الف) $y = 2x + 1$



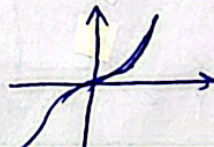
ب) $y = -2x + 1$



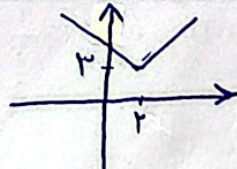
ج) $y = x^2$



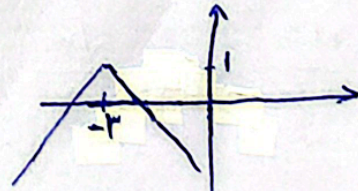
د) $y = x^3$



الف) $y = |x-2| + 3$



ب) $y = -|x+3| + 1$



الف) $y = \frac{x+4}{x^2-5x} \Rightarrow x^2-4x \neq 0 \Rightarrow x(x-4) \neq 0 \Rightarrow x \neq 0, 4$

ب) $y = \frac{x+4}{x^2-7x+12} \Rightarrow x^2-7x+12 \neq 0$

$\Delta = 49 - 4(1)(12) = -15$
 ریشه حقیقی ندارد

$D_f = \mathbb{R} - \{0, 4\}$

$D_f = \mathbb{R}$

ج) $y = \frac{x+5}{x^2+x+4} \Rightarrow x^2+x+4 \neq 0$

$\Delta = 1 - 4(1)(4) = -15$

$D_f = \mathbb{R}$

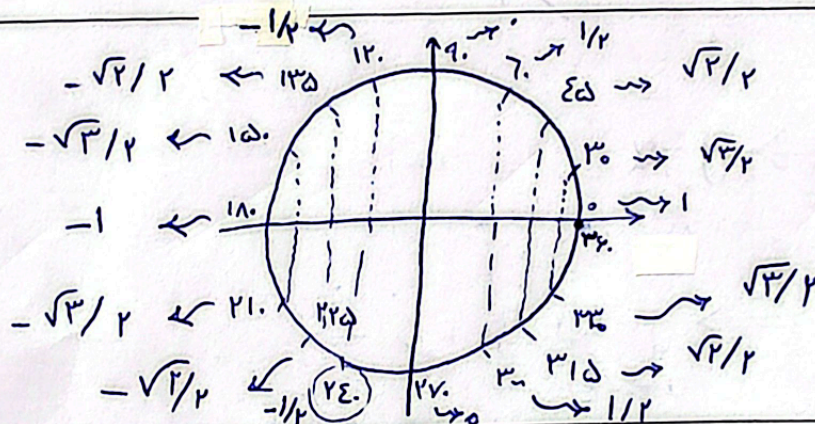
د) $y = \frac{x+4}{x^2-4x^2} \Rightarrow x^2-4x^2 \neq 0 \Rightarrow x^2(x^2-4) \neq 0 \Rightarrow x^2(x+2)(x-2) \neq 0$ $D_f = \mathbb{R} - \{0, 2, -2\}$

الف) $y = \sqrt{6-x} + \sqrt{x-2} \Rightarrow \begin{cases} 6-x \geq 0 \Rightarrow x \leq 6 \\ x-2 \geq 0 \Rightarrow x \geq 2 \end{cases}$ $D_f = [2, 6]$

ب) $y = \frac{2x+1}{x^2+1}$ $D_f = \mathbb{R}$

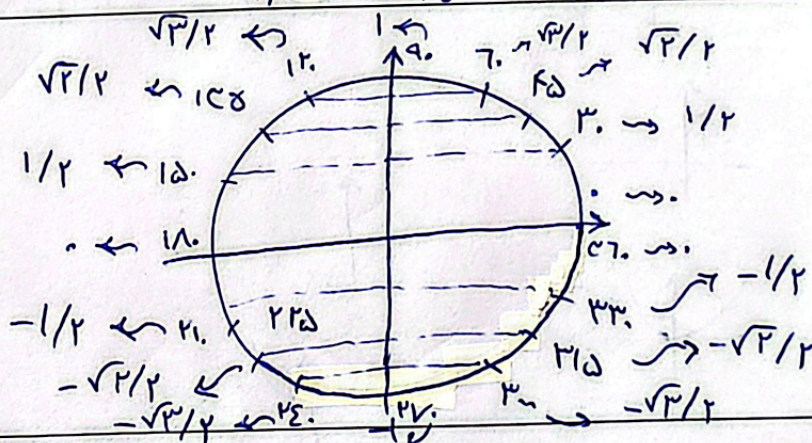
ج) $y = \frac{2x+3}{1x^2+x^2} \Rightarrow D_f = \mathbb{R} - \{0\}$

د) $y = \frac{\sqrt{x-2}}{x-5} \Rightarrow \begin{cases} x-2 \geq 0 \Rightarrow x \geq 2 \\ x-5 \neq 0 \Rightarrow x \neq 5 \end{cases}$ $D_f = \mathbb{R} - \{5\} - (-\infty, 2)$



Cos

1



Sin

9

$-\cos \frac{7\pi}{12} = 1/2$ $\sin \frac{\pi}{7} = 1/2$ $\sin \frac{5\pi}{7} = 1/2$ (الف)

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

10