

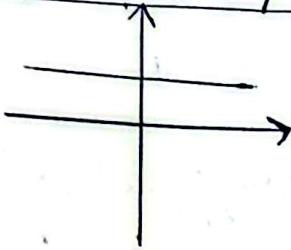
تابع است $\left. \begin{aligned} y^3 - x &= 2x^2 \rightarrow y_1^3 - x_1 = 2x_1^2 \\ y_2^3 - x_2 &= 2x_2^2 \end{aligned} \right\} \xrightarrow{x=x_1=y_1} y_1^3 = y_1^3 \rightarrow y_1 = y_2$

ب) تابع نیست $|y| + x^2 = x + 3 \xrightarrow{x=0} |y| = 3 \rightarrow y = \pm 3$

ج) تابع است $\sqrt{x-4} + |y-2| = 0 \xrightarrow{\text{چون دو عبارت مثبت صفر شده}} x=4, y=2$

د) عبارت برای y پیدا شد به تابع نیست $x = \cos y \xrightarrow{x=0} y = \frac{\pi}{2}, \frac{3\pi}{2}$

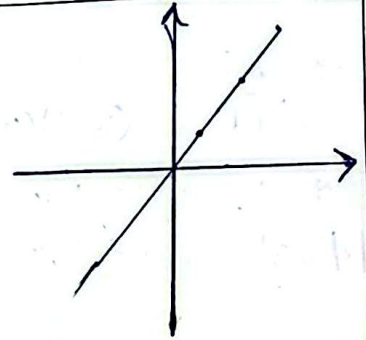
الف) $y=1$



ب) $y=2x$

$y=2 \quad x=1$

$y=4 \quad x=2$



الف) $y=ax+b \xrightarrow{\text{تابع همانی}} y=x \rightarrow a=1, b=0 \quad a+2b=1$

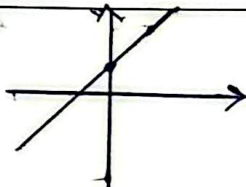
ب) $y=x^2+ax+b \rightarrow \frac{-a}{2} = 2 \rightarrow -a=4 \rightarrow a=-4 \quad a+2b=-4+10=6$

$1=4-1+b \rightarrow b=5$

$b=5$

الف) $y=2x+1$

$x=0 \quad y=1$
 $y=3 \quad x=1$

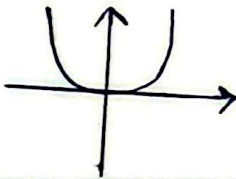


ب) $y=-3x+1$

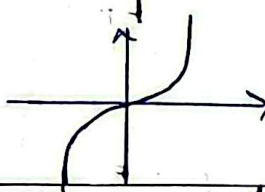
$x=0 \quad y=1$
 $y=4 \quad x=-1$



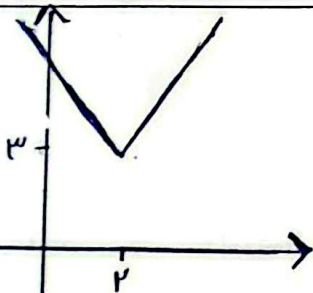
ج) $y=x^2$



د) $y=x^5$

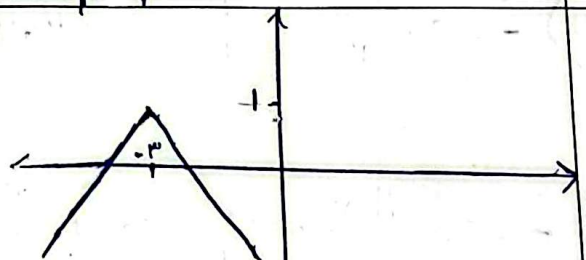


الف)



$y=|x-2|+3$

ب)



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

الف) $y = \frac{x+4}{x^2-4x} = \frac{x+4}{x(x-4)}$ $\xrightarrow{\text{ریشه های منفرجه}} x=0, x=4 \rightarrow D_f = \mathbb{R} - \{0, 4\}$

ب) $y = \frac{x+4}{x^2-7x+14}$ $\xrightarrow{\text{دلتای منفرجه}} D_f = \mathbb{R}$
 مقلی است بین
 تغییر نه نابذیر است

د) $y = \frac{x+4}{x^2-4x^2} = \frac{x+4}{x^2(x-4)(x+4)}$

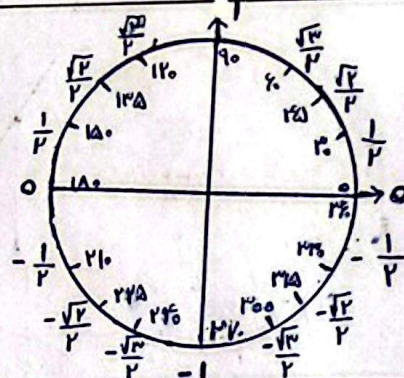
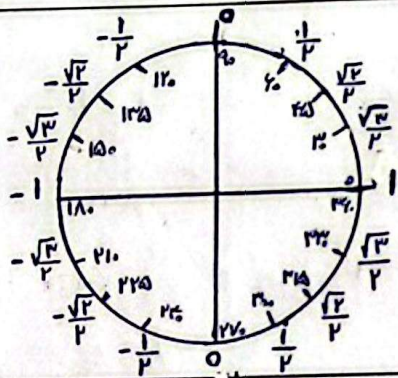
$D_f = \mathbb{R} - \{0, 4, -4\}$

ج) $y = \frac{x+4}{x^2+x+4}$ $\xrightarrow{\text{دلتای منفرجه}} D_f = \mathbb{R}$
 مقلی است بین
 فاند ریشه است

الف) $y = \sqrt{4-x} + \sqrt{x-2} \rightarrow \begin{cases} 4-x \geq 0 \rightarrow x \leq 4 \\ x-2 \geq 0 \rightarrow x \geq 2 \end{cases} \cup \rightarrow D_f = [2, 4]$

ب) $\frac{3x+1}{x^2+1} \rightarrow \frac{3x+1}{x^2+1} \rightarrow x^2 > -1 \xrightarrow{\text{عبارت همواره برقرار است}} D_f = \mathbb{R}$

ج) $\frac{\sqrt{x-2}}{x-4} \rightarrow \begin{cases} x-2 \geq 0 \rightarrow x \geq 2 \\ x-4 \neq 0 \rightarrow x \neq 4 \end{cases} \rightarrow D_f = (2, +\infty)$
 د) $\frac{2x+3}{|x+x^2|} \rightarrow \begin{cases} |x+x^2| > 0 \\ x^2 > |x| \end{cases} \rightarrow D_f = \mathbb{R} - \{0\}$



الف) $-\cos \frac{\pi}{4} = \frac{1}{\sqrt{2}} \rightarrow \sin 30^\circ, \sin 150^\circ \rightarrow \sin \frac{\pi}{6}, \sin \frac{5\pi}{6}$

ب) $-\cos \frac{11\pi}{4} = -\frac{\sqrt{3}}{2} \rightarrow \sin 240^\circ, \sin 300^\circ \rightarrow \sin \frac{4\pi}{3}, \sin \frac{5\pi}{4}$