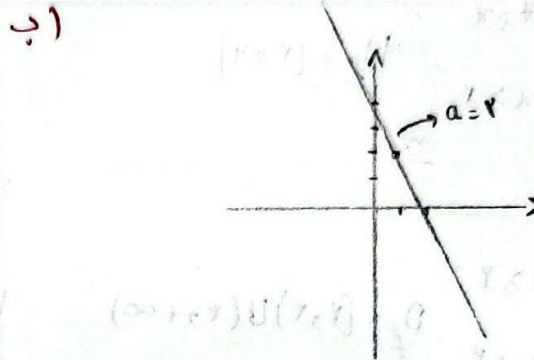
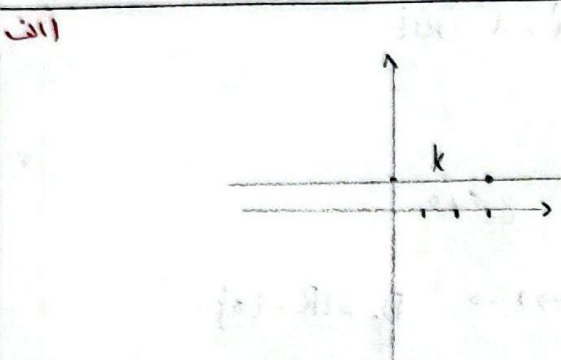


الف) $y^3 - x = 2x^2$ تابع است.

$$\begin{cases} y^3 = 2x^2 + x \\ y^3 = 2x^2 + x \end{cases} \Rightarrow y_1 = y_2 \Rightarrow y = y$$

ب) $x = \cos y \Rightarrow x = 0 \Rightarrow \cos y = 0$ تابع نیست.

$$\Rightarrow \begin{cases} y = 90^\circ \\ y = 270^\circ \end{cases}$$

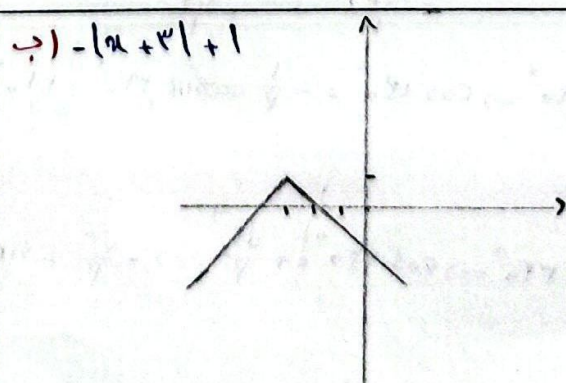
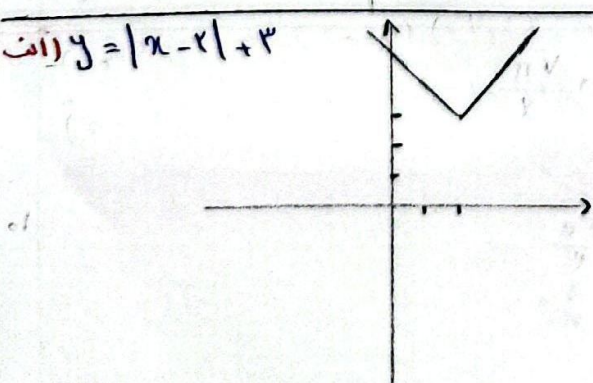
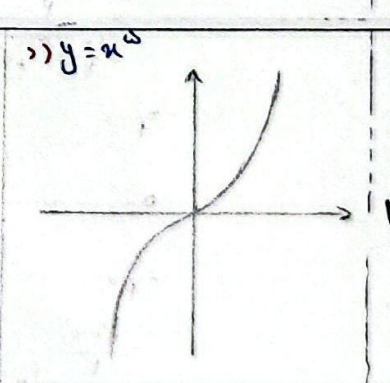
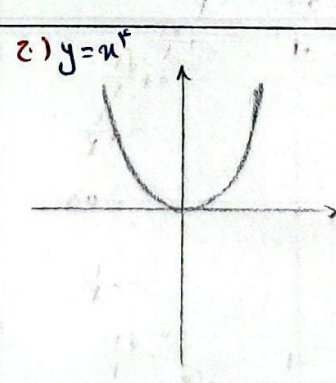
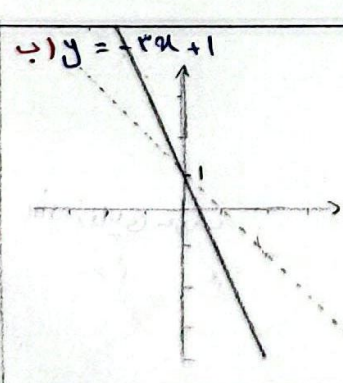
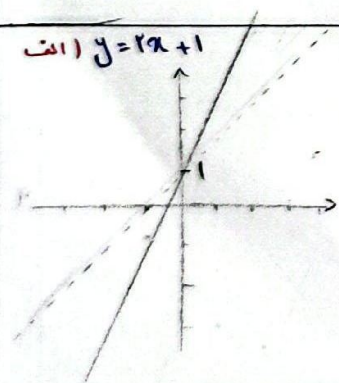


الف) $a + 2b = 1 + 2(0) = 1$

* در تابع همنی a (شیب) برابر 1 و b (عرض از مبدأ) برابر 0 است.

ب) $a + 2b = -4 + 2(5) = 6$ $y = ax^2 + bx + c$

$$\begin{aligned} -\frac{b}{2a} &= 2 \Rightarrow -\frac{b}{2} = 2 \Rightarrow b = -4 \\ -\frac{\Delta}{4a} &= 1 \Rightarrow -\frac{b^2 - 4ac}{4} = 1 \Rightarrow 16 - 4c = -4 \Rightarrow -4c = -20 \Rightarrow c = 5 \end{aligned}$$



الف) $\frac{x+4}{x^2-4x}$ $x^2-4x=0 \rightarrow (x-4)x=0 \begin{cases} x=4 \\ x=0 \end{cases}$

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

ب) $\frac{x+4}{x^2-7x+14} \rightarrow \Delta < 0$ ریشه ندارد

$D_f = \mathbb{R}$

ج) $\frac{x+4}{x^2+x+4} \rightarrow \Delta < 0$ ریشه ندارد

$D_f = \mathbb{R}$

د) $\frac{x+4}{x^2-4x^2} \rightarrow x^2-4x^2=0 \rightarrow x^2(x-4)(x+4)$

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

الف) $\sqrt{4-x} + \sqrt{x-2}$

$\begin{cases} 4-x \geq 0 \rightarrow x \leq 4 \\ x-2 \geq 0 \rightarrow x \geq 2 \end{cases}$

$D_f = [2, 4]$

ب) $\frac{2x+1}{x^2+1} \rightarrow$ مخرج $\neq 0$

$x^2+1=0 \rightarrow x^2=-1$ غایب

$D_f = \mathbb{R}$

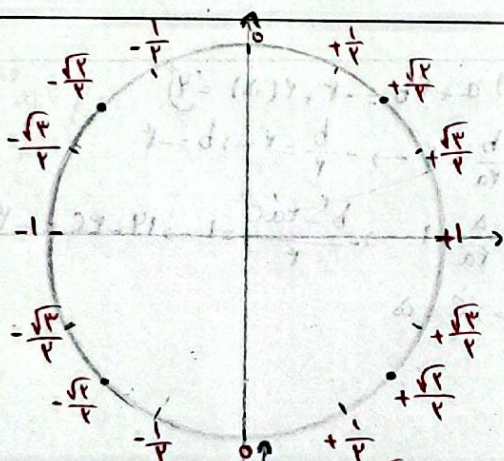
ج) $\frac{\sqrt{x-2}}{x-4}$

$\begin{cases} x-2 \geq 0 \rightarrow x \geq 2 \\ x-4 \neq 0 \rightarrow x \neq 4 \end{cases}$

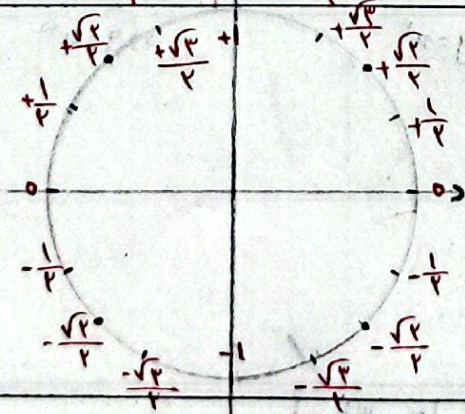
$D_f = [2, 4) \cup (4, +\infty)$

د) $\frac{2x+3}{|x|+x^2} \rightarrow$ مخرج $\neq 0$

$\frac{|x|}{\geq 0} + \frac{x^2}{\geq 0} = 0 \rightarrow x=0 \quad D_f = \mathbb{R} - \{0\}$



cos زوایای معروف



sin زوایای معروف

الف) $\frac{2\pi}{4} \rightarrow 180^\circ \Rightarrow \cos 180^\circ = -\frac{1}{2} \Rightarrow +\frac{1}{2} = \sin \frac{5\pi}{4}, \frac{3\pi}{4}$

ب) $\frac{11\pi}{4} \rightarrow 330^\circ \Rightarrow \cos 330^\circ = +\frac{\sqrt{3}}{2} \Rightarrow -\frac{\sqrt{3}}{2} = \sin \frac{4\pi}{3}, \frac{8\pi}{3}$