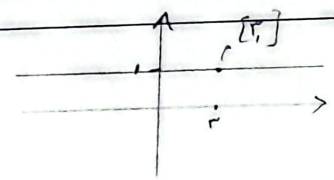


الف)
$$\begin{cases} y_1^3 = 2x_1^2 + x_1 & x_1 = x_2 \\ y_2^3 = 2x_2^2 + x_2 \end{cases} \rightarrow y_1^3 = y_2^3 \Rightarrow y_1 = y_2$$

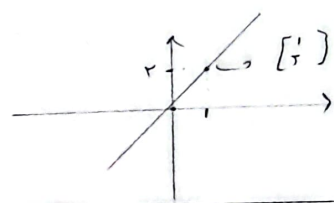
ب) $x=0 \Rightarrow |y| = 3 \Rightarrow y = \pm 3$ سطح شیب

ج) $y=2 \Rightarrow |y-2|=0 \Rightarrow \text{حزب شیب} = 0 \Rightarrow \text{مجموع شیب} = 0$

د) $x = \cos y \xrightarrow{x=0} \cos y = 0 \Rightarrow y = \frac{\pi}{2}, \frac{3\pi}{2}$ سطح شیب



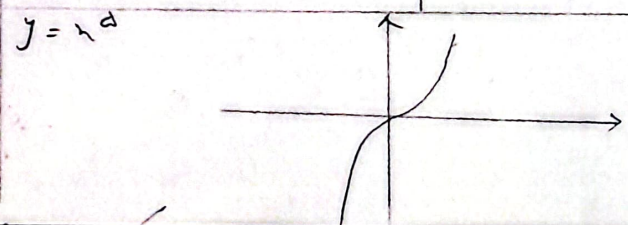
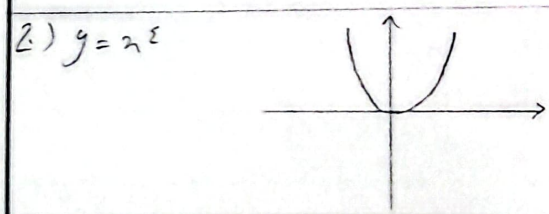
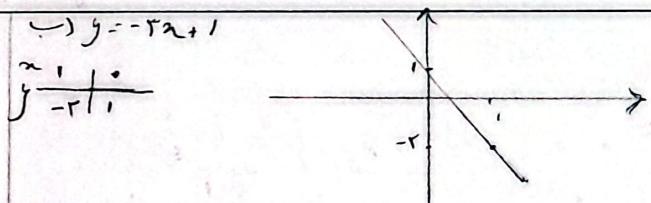
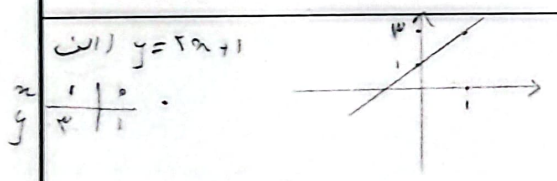
الف) $y=k$ سطح شیب $y=1$



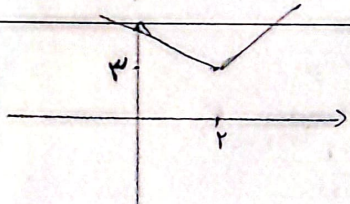
ب) $y = ax + b$ سطح شیب $y = 2x$
 $2 = 2(1) + b \Rightarrow b = 0$

الف) $y = ax + b$
 $y = x \Rightarrow a = 1, b = 0 \Rightarrow a + 2b = 1$

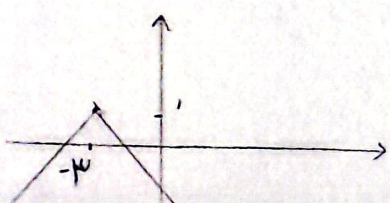
ب) $y = x^2 + ax + b$ $\min |f|$
 $x_{\min} = -\frac{a}{2} \Rightarrow -\frac{a}{2} = 2 \Rightarrow a = -4$
 $1 = 4 - 1 + b \Rightarrow b = 2$
 $a + 2b = 4$



الف) $y = |x-2| + 2$



ب) $y = -|x+2| + 1$



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

ب) $y = \frac{n+4}{n^2-7n+14}$ $\Delta = 49 - 56 = -7 < 0$ $\Rightarrow D_f = \mathbb{R} - \{0, 4\}$
 مخرج ایند حقیقی ندارد چون Δ آن منفی است $\Rightarrow D_f = \mathbb{R}$

ج) $y = \frac{n+4}{n^2+n+4}$ $\Delta = 1 - 16 = -15 < 0 \Rightarrow D_f = \mathbb{R}$
 مخرج ایند حقیقی ندارد چون Δ آن منفی است

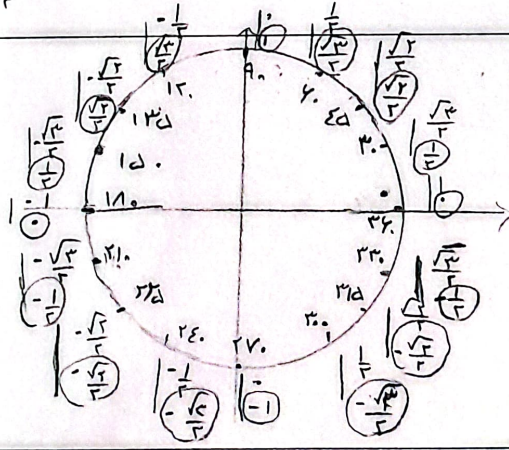
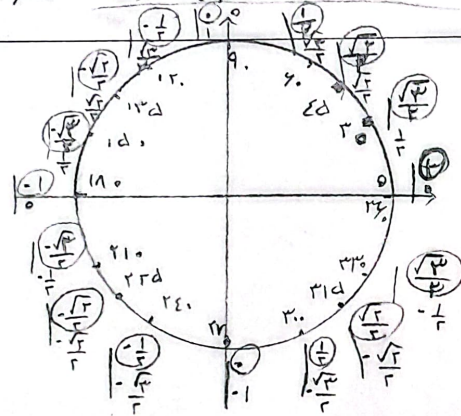
د) $y = \frac{n+4}{2n^2-4n}$ $2n^2-4n \neq 0$ $n^2(n-2)(n+2) \neq 0 \Rightarrow n \neq 0, \pm 2$ $D_f = \mathbb{R} - \{0, \pm 2\}$

الف) $y = \frac{4-x}{x-2} > 0 \Rightarrow x < 2$
 $x-2 > 0 \Rightarrow x > 2 \Rightarrow D_f = [2, 4]$

ب) $|x| + x^2 \neq 0$ $x=0$ سبب $\Rightarrow D = \mathbb{R} - \{0\}$

ج) $x^2+1 \neq 0$ $\Rightarrow D_f = \mathbb{R}$
 عبارت همواره مثبت است

د) $x-2 > 0 \Rightarrow x > 2$
 $x-4 \neq 0 \Rightarrow x \neq 4 \Rightarrow D_f = [2, 4) \cup (4, +\infty)$



الف) $\cos \frac{2\pi}{3} = -\frac{1}{2}$ $\xrightarrow{\text{تقریب}} \frac{1}{2}$

زاویه هایی است
 $\frac{\pi}{6}$ و $\frac{5\pi}{6}$ سینوس آنها $\frac{1}{2}$

ب) $\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}$ $\xrightarrow{\text{تقریب}} -\frac{\sqrt{3}}{2}$

زاویه هایی است
 $\frac{4\pi}{3}$ و $\frac{5\pi}{3}$ سینوس آنها $-\frac{\sqrt{3}}{2}$