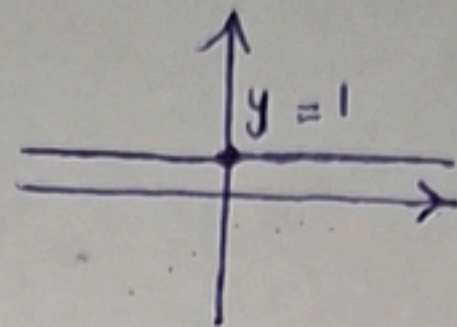


الف)  $\left. \begin{aligned} y_1^3 &= 2x_1^2 - x_1 \\ y_2^3 &= 2x_2^2 - x_2 \end{aligned} \right\} \begin{aligned} x_1 &= x_2 \\ \Rightarrow y_1^3 &= y_2^3 \Rightarrow y_1 = y_2 \end{aligned} \checkmark$  تابع است

ب)  $\begin{aligned} x &= 1 \Rightarrow |y| + 1 = 1 + 3 \Rightarrow |y| = 3 \Rightarrow y = \pm 3 \quad \times \end{aligned}$  مثال نقض د

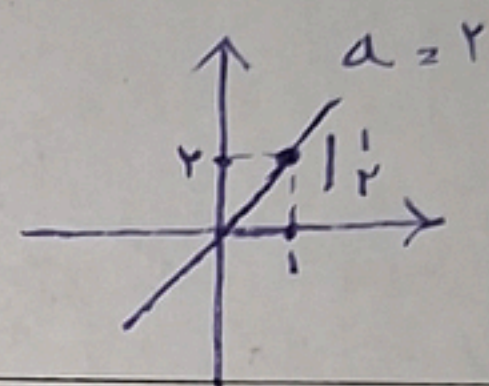
تابع است  $\checkmark$   $\left| \frac{4}{2} \right|$  نقطه در یک نقطه  $\Rightarrow x = 4$  و  $y = 2$  هر دو نامفرد اند پس باید باشد.   
 د)  $\begin{aligned} x &= 0 \Rightarrow x = \cos y \Rightarrow y = \frac{\pi}{2} \text{ یا } \frac{3\pi}{2} \quad \times \end{aligned}$  تابع نیست

$y=1 \Leftarrow y=k$



الف

$y=2x-3 \Leftarrow y=ax+b$



ب

الف:  $\begin{aligned} a+2b &= 1 \\ \Leftarrow a=1, b=0 &\Leftarrow y=x \end{aligned}$

$\begin{aligned} a+2b &= 1 \\ -4+4 &= \frac{2}{2} \end{aligned}$

$\frac{a-4b}{4} = 1 \Rightarrow \boxed{b=+3}$

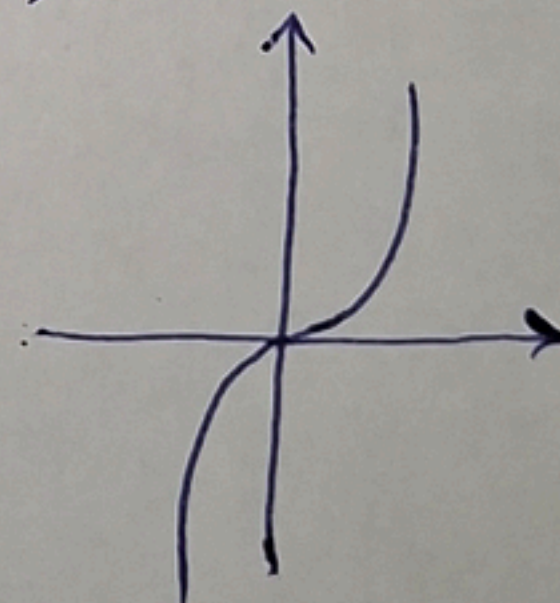
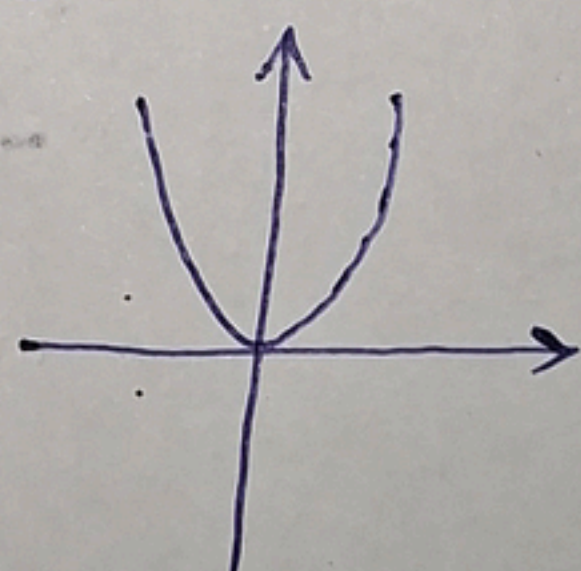
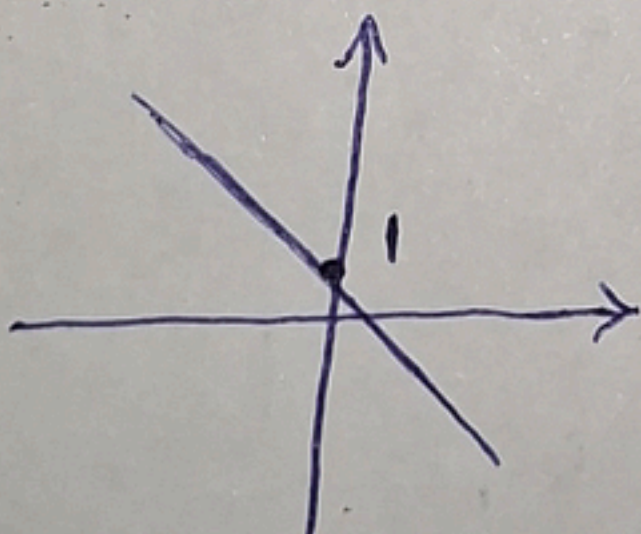
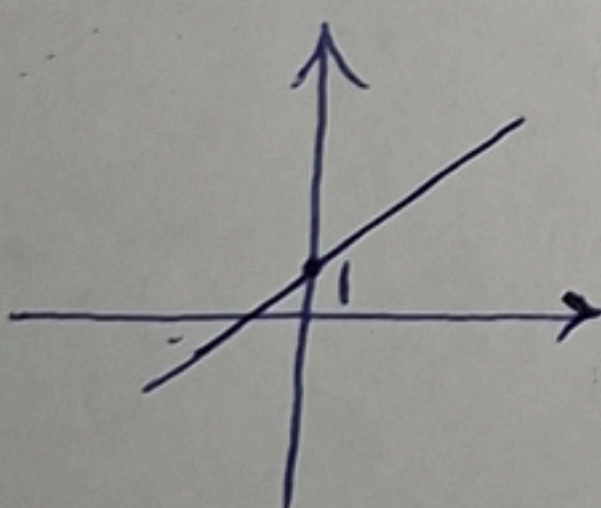
ب:  $\frac{-a}{2} = 2 \Rightarrow \boxed{a=-4}$

الف

ب

ج

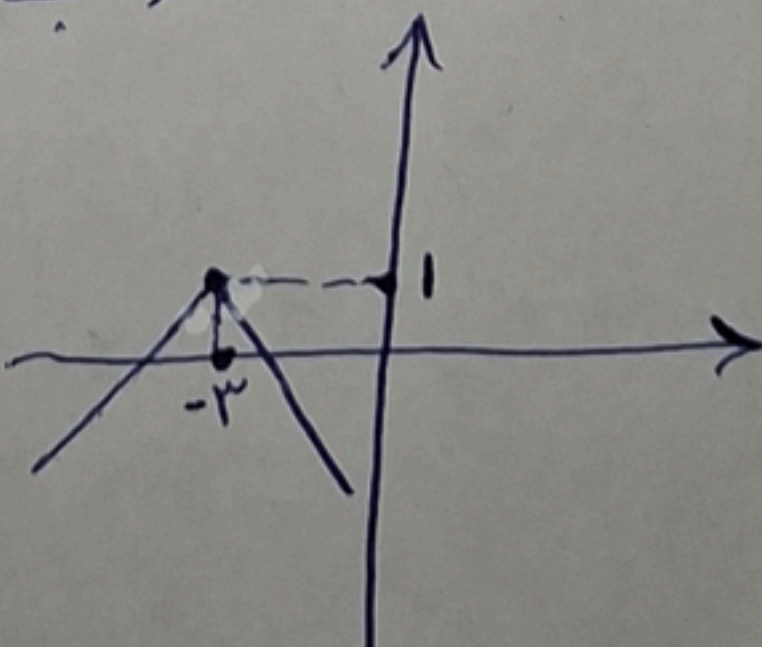
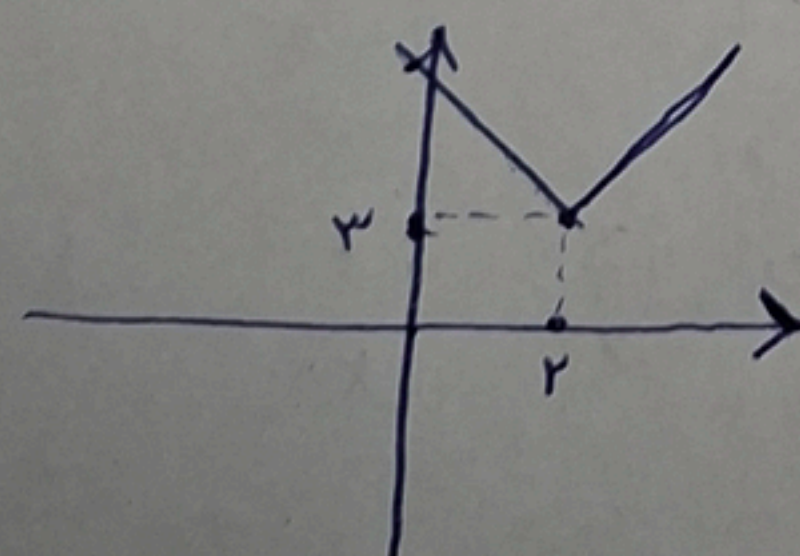
د



۴

الف

ب



۵

الف)  $\frac{x+4}{x(x-4)}$   $\downarrow$  4

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

ج)  $D_f = \mathbb{R}$

ب)  $\frac{x+4}{x^2 - \sqrt{x+4}}$

$\Delta < 0 \Rightarrow$   
ریشه حقیقی ندارد

$D_f = \mathbb{R}$

د)  $\frac{x+4}{x^2(x-2)(x+2)}$   $\downarrow$  2, -2

$D_f = \mathbb{R} - \{0, 2, -2\}$

الف)  $x \leq 4, x \geq 2$

ج)  $x \geq 2, x \neq 4$

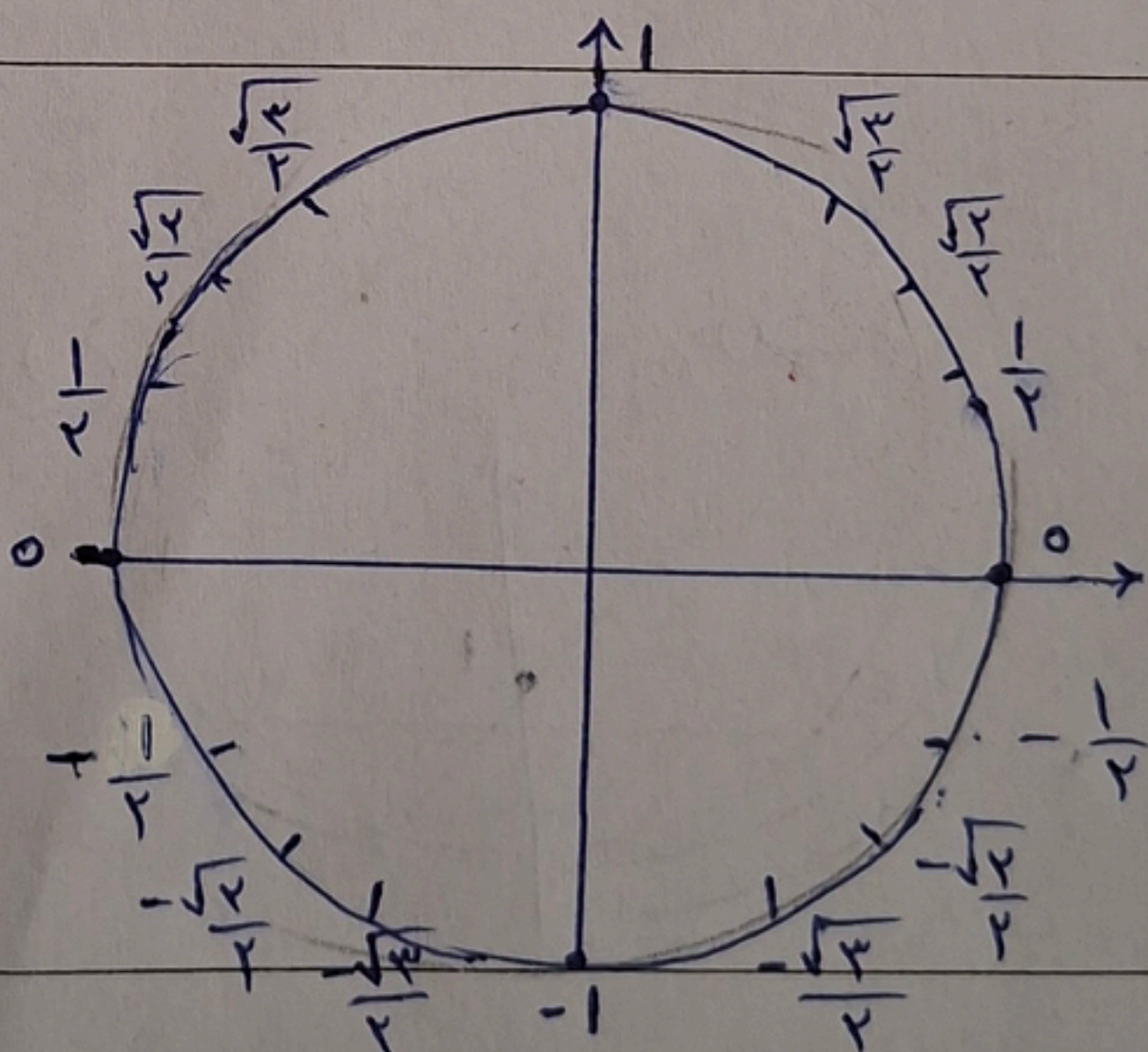
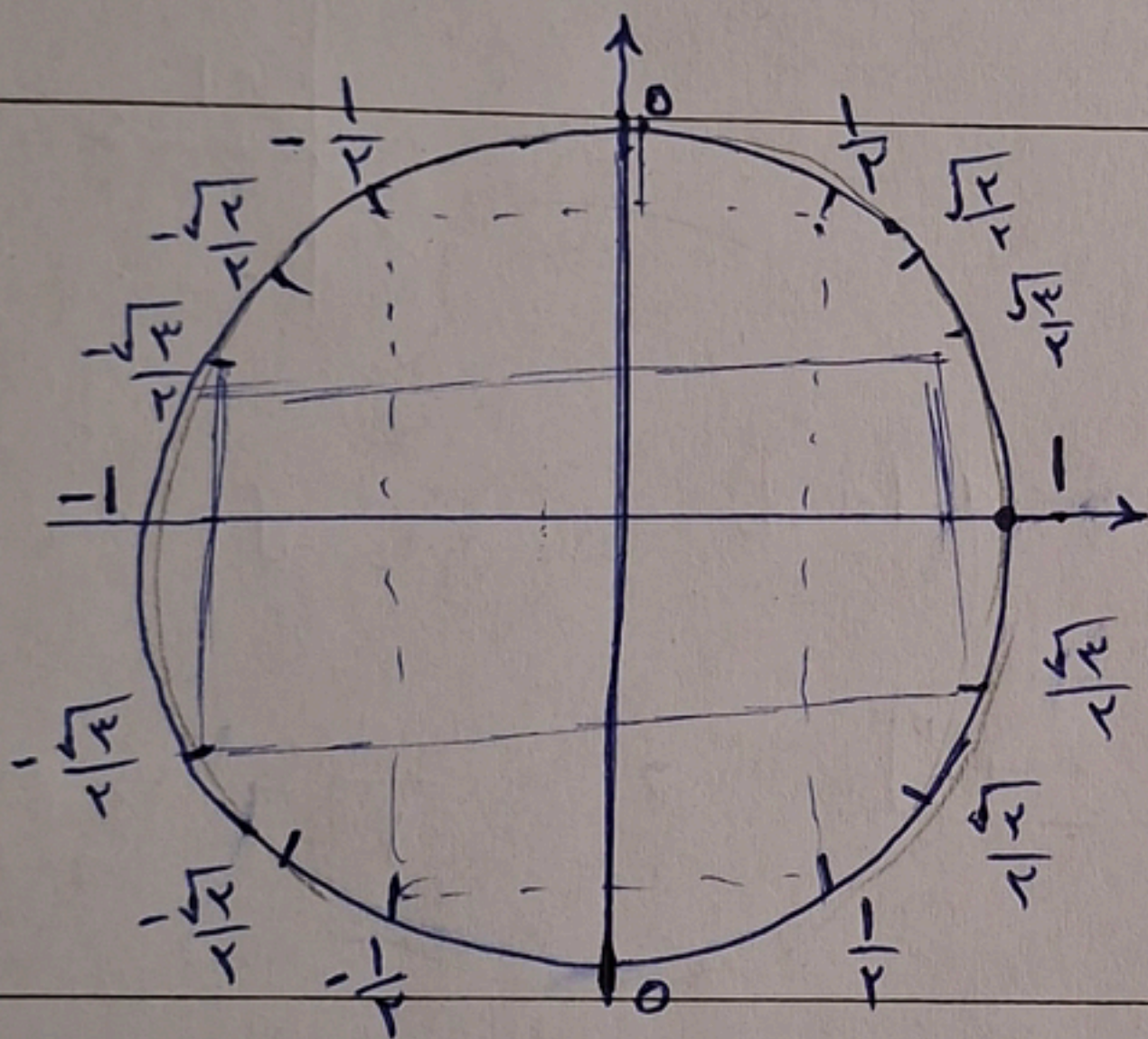
$2 \leq x \leq 4$

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

ب) منحنی همواره مثبت

د)  $D_f = \mathbb{R} - \{0\}$

$D_f = \mathbb{R}$



زاویه ای با سینوس  $\frac{1}{2} \Leftarrow \frac{\pi}{6}, \frac{5\pi}{6}$

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

زاویه ای با سینوس  $-\frac{\sqrt{3}}{2} \Leftarrow \frac{4\pi}{3}, \frac{5\pi}{3}$

ب)  $\cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}$