

تابع است. $y_1^3 = y_2^3 \Rightarrow y_1 = y_2$

$$\left. \begin{array}{l} y_1^3 = 2x^2 - 1 \\ y_2^3 = 2x^2 - 1 \end{array} \right\} \text{ (الف) } y = 2x^2 - 1$$

تابع است. $y_1 - y_2 = 0$
 $y_1 = y_2$

$$\left. \begin{array}{l} y_1^3 + y_1 = 3x^2 - 1 \\ y_2^3 + y_2 = 3x^2 - 1 \end{array} \right\} \text{ (ب) } y = 3x^2 - 1$$

$$y_1^3 + y_1 = y_2^3 + y_2 \Rightarrow y_1^3 + y_1 - y_2^3 - y_2 = 0$$

$$(y_1 - y_2)(y_1^2 + y_1 y_2 + y_2^2 + 1) = 0$$

تابع است. $x = 0 \Rightarrow y = -1$

(الف) $y = x^2 - 1$

تابع نیست. $y = \pm 1$

(ب) $|y| + x = x^2 + 1$

تابع است. $y = -1$

(ج) $y^3 + x^3 = 2x - 1$

تابع است. $y = (x^3 - 2)^{1/3}$

(د) $\sqrt[3]{y} + \sqrt[3]{x} = 2$

(الف) $\tan \frac{\pi}{3} \Rightarrow \frac{\sin \frac{\pi}{3}}{\cos \frac{\pi}{3}} = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3}$

(ب) $\cot \frac{\sqrt{3}\pi}{4} \Rightarrow \frac{\cos \frac{\sqrt{3}\pi}{4}}{\sin \frac{\sqrt{3}\pi}{4}} = \frac{-\frac{\sqrt{3}}{2}}{-\frac{1}{2}} = \sqrt{3}$

(ج) $\tan 330^\circ \Rightarrow \frac{\sin 330^\circ}{\cos 330^\circ} = \frac{-\frac{1}{2}}{\frac{\sqrt{3}}{2}} = -\frac{1}{\sqrt{3}}$

(د) $\cot 180^\circ \Rightarrow \frac{\cos 180^\circ}{\sin 180^\circ} = \frac{-1}{0}$ تعریف نشده

(الف) $\sin a = \frac{1}{2}$ $0 \leq a < \pi$ $\frac{\pi}{4} < \frac{3\pi}{4}$

$a = \frac{\pi}{4}$ و $\frac{3\pi}{4}$

(ب) $\cos a = \frac{\sqrt{2}}{2}$

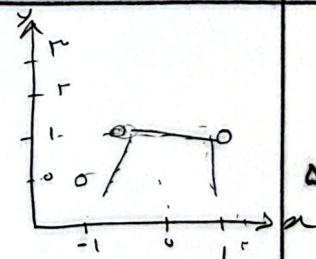
$\cos \frac{\pi}{4} = \frac{\sqrt{2}}{2}$ $a = \frac{\pi}{4}$

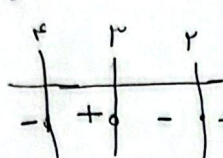
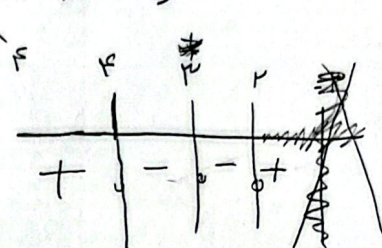
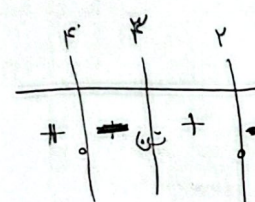
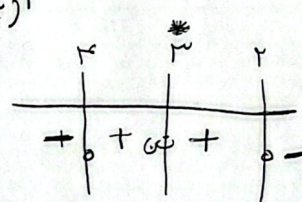
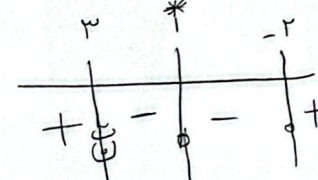
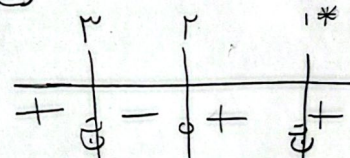
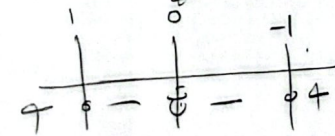
$f(x) = \begin{cases} -2x+4 & x > 1 \\ x^2 & -1 < x < 1 \\ x+1 & x < -1 \end{cases}$

$y = -2x+4$ $x > 1$ $(1, 2)$

$y = x^2$ $-1 < x < 1$ $(0, 0)$

$y = x+1$ $x < -1$ $(-1, 0)$



$f(x) = \begin{cases} -x+3 & x > 1 \\ x^3 & -1 \leq x \leq 1 \\ -x-1 & x < -1 \end{cases}$?	$y = -x+3 \quad x > 1 \quad (1, 2)$ $y = x^3 \quad \text{"} \quad (0, 0)$ $y = -x-1 \quad (-1, 0)$	6
الف) $y = (x-2)(x-3)(x-4)$ ریشه‌ی مخالف ندارد 	ب) $y = (x-2)(x-3)(x-4)$ 	7
الف) $y = \frac{(x-2)(x-4)}{x-3}$ ریشه‌ی مخالف ندارد 	ب) $y = \frac{(x-2)(x-4)}{(x-3)^2}$ 	8
الف) $y = \frac{x^3-3x+2}{x-3} = \frac{(x-1)^2(x+2)}{x-3}$ 	ب) $y = \frac{x^3-3x+2}{x^2-5x+3} = \frac{(x-1)(x-2)}{(x-1)(x-4)}$ ① ② ③ 	9
الف) $y = \frac{x^4-4x^2}{x^2+x+2} = \frac{x^2(x^2+1)}{x^2+x+2} = \frac{x^2(x-1)(x+1)}{x^2+x+2}$ ① ② ③ 	ب) $y = \frac{x^4+3x^2+2}{x^2+5x+3} = \Delta = 5-12 = -7$ با جمع مقادیر معکوس می‌توانیم حد را پیدا کنیم	10