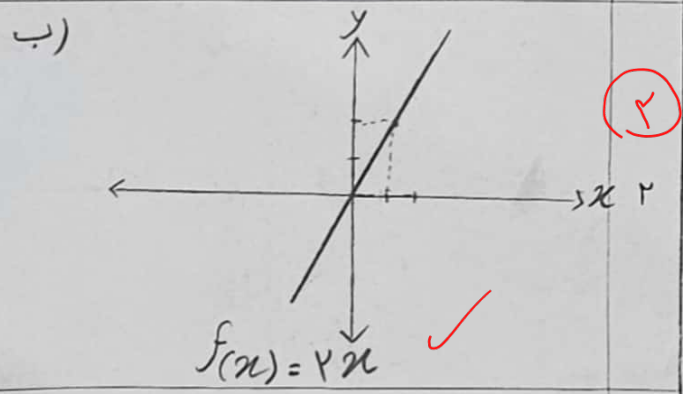
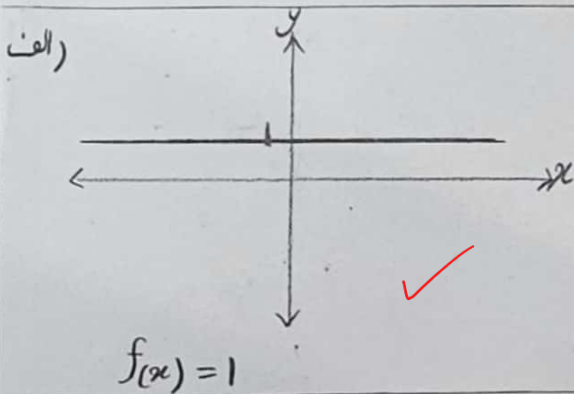
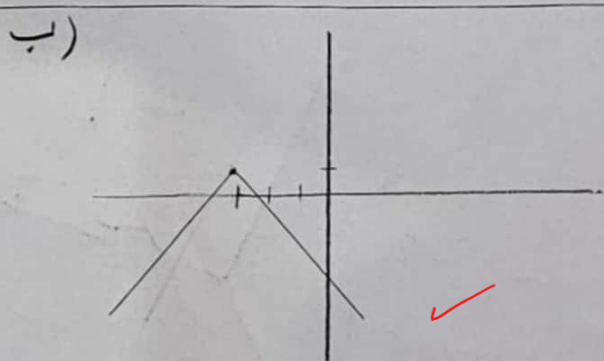
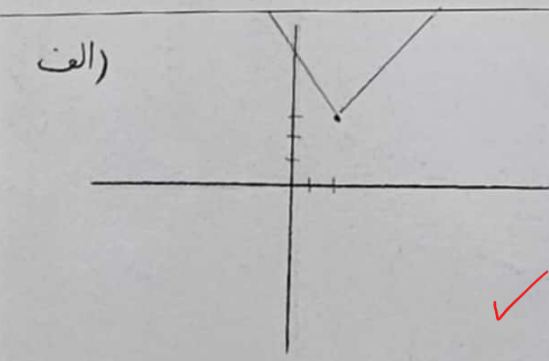
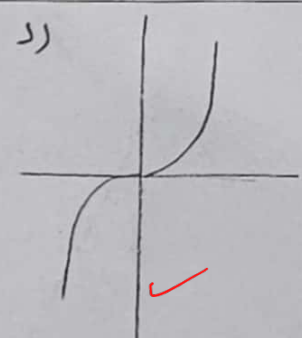
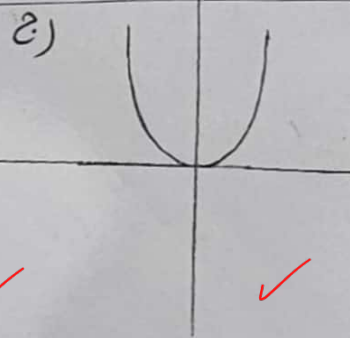
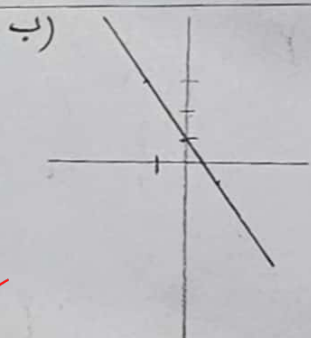
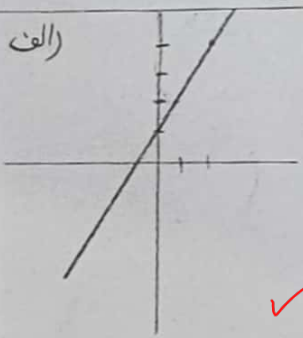


الف) $\rightarrow \begin{cases} y_1^3 = 2x_1^2 + x_1 \\ y_2^3 = 2x_2^2 + x_2 \end{cases} \xrightarrow{x_1 = x_2} y_1^3 = y_2^3 \Rightarrow y_1 = y_2 \Rightarrow$ به کمک تعریف ریاضی تابع است. ۲
 ب) با توجه به مثال نقض تابع نیست. $\Rightarrow y = \pm 3 \Rightarrow |y| = -0^2 + 0 + 3 \Rightarrow x = 0 \Rightarrow$ مثال نقض (ک) ۱
 ج) فقط نقطه $\begin{bmatrix} 4 \\ 2 \end{bmatrix}$ صدق کند پس تابع است $\Rightarrow \begin{bmatrix} 4 \\ 2 \end{bmatrix} \Rightarrow$ جواب هر دو جمله صفر است $\Rightarrow$ حاصل دو جمله نامنفی صفر شده است (ج)
 د) با توجه به مثال نقض تابع نیست. $\Rightarrow \cos y = 0 \Rightarrow y = 0, \frac{\pi}{2}, \frac{3\pi}{2}, \dots \Rightarrow$ مثال نقض (د)



الف) $\Rightarrow y = x \Rightarrow \boxed{a=1}, \boxed{b=0} \Rightarrow y = 1x + 0 \Rightarrow a + 2b = \underline{\underline{1}}$ ✓

ب) $\frac{-b}{2a} = 2 \Rightarrow b = -4 \Rightarrow \boxed{a=-4} / (2)^2 + (-4)(2) + b = 1 \Rightarrow \boxed{b=5}$
 $\Rightarrow a + 2b = (-4) + 2 \times 5 = \underline{\underline{6}}$ ✓



✓ 1) $x^2 - 4x \neq 0 \Rightarrow x \neq 0, 4 \Rightarrow D_f = \mathbb{R} - \{0, 4\}$

✓ 2) $x^2 - 7x + 12 \Rightarrow \Delta: \text{منفی} \Rightarrow \text{خرج ریشه ندارد} \Rightarrow D_f = \mathbb{R}$
 $(-7)^2 - (4 \times 1 \times 12) = 49 - 48 = 1$

✓ 3) $x^2 + x + 2 \Rightarrow \Delta: \text{منفی} \Rightarrow \text{خرج ریشه ندارد} \Rightarrow D_f = \mathbb{R}$
 $(1)^2 - (1 \times 1 \times 2) = 1 - 2 = -1$

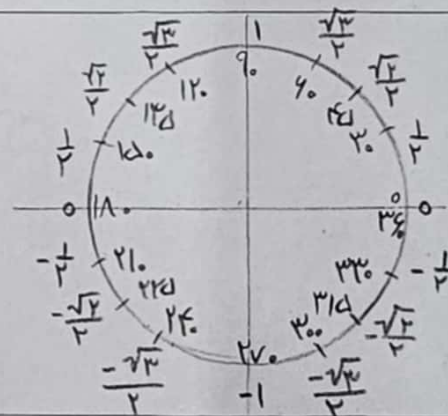
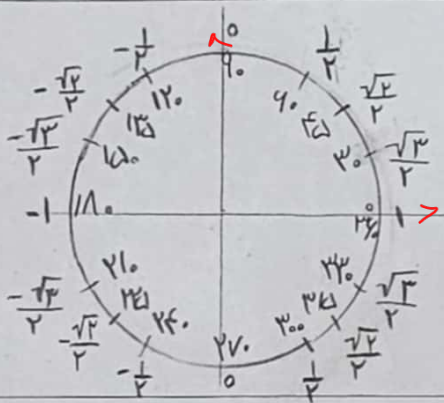
✓ 4) $x^2 - 4x \neq 0 \Rightarrow x^2(x - 4) \neq 0 \Rightarrow D_f = \mathbb{R} - \{0, 4, -2\}$

✓ الف) $4 - x \geq 0 \Rightarrow x \leq 4 / x - 2 \geq 0 \Rightarrow x \geq 2 \Rightarrow D_f = [2, 4]$

✓ 5) $x^2 + 1 \neq 0 \Rightarrow x^2 \neq -1 \Rightarrow D_f = \mathbb{R}$
 خراج اصلا منفی نمود

✓ 6) $x - 2 \geq 0 \Rightarrow x \geq 2 / x - 4 \neq 0 \Rightarrow x \neq 4 \Rightarrow D_f = [2, 4) \cup (4, +\infty)$

✓ 7) $|x| + x^2 \neq 0 \Rightarrow x \neq 0 \Rightarrow D_f = \mathbb{R} - \{0\}$



الف) $-\cos \frac{7\pi}{3} = +\frac{1}{2} \Rightarrow \frac{5\pi}{4}, \frac{\pi}{4}$

ب) $-\cos \frac{11\pi}{4} = -\frac{\sqrt{3}}{2} \Rightarrow \frac{4\pi}{3}, \frac{5\pi}{3}$