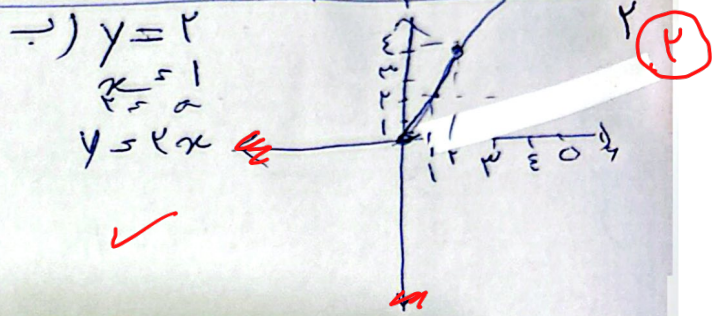
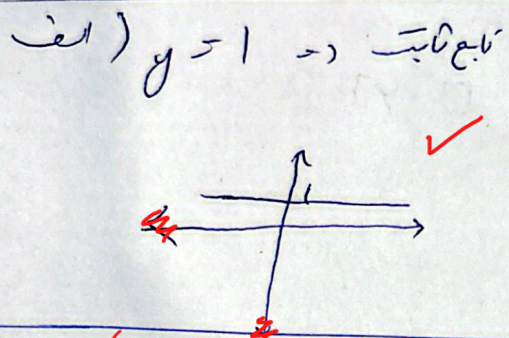


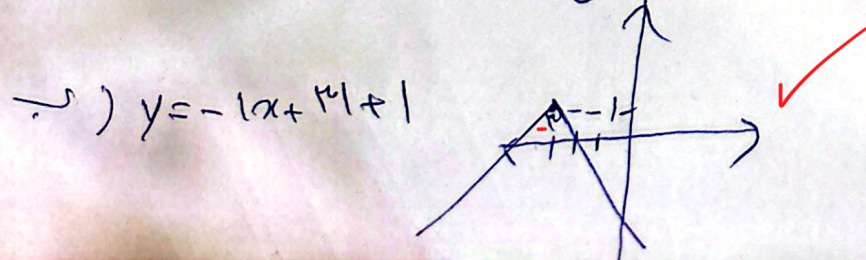
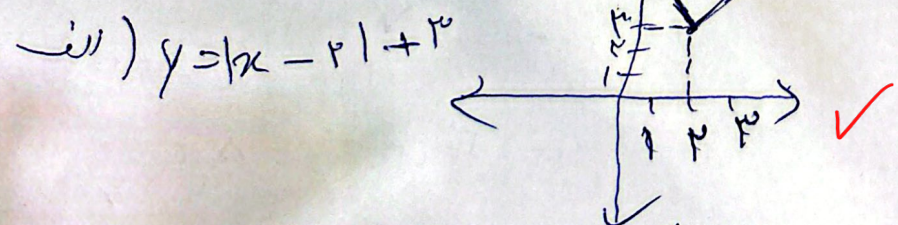
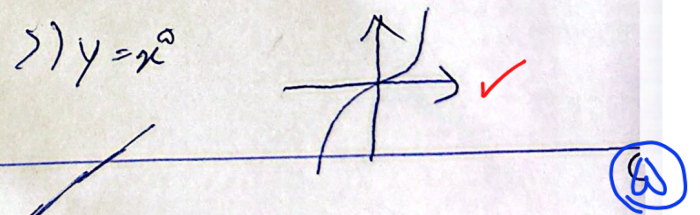
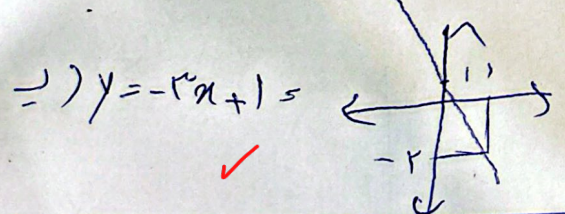
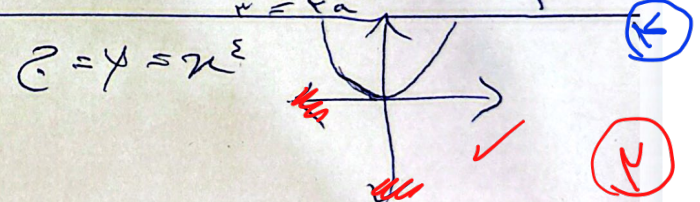
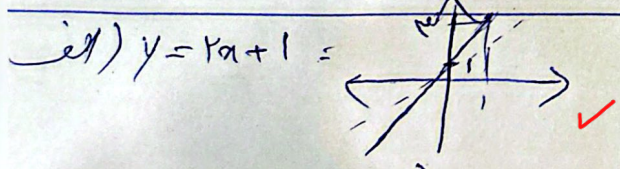
الف) $y^3 - x = 2x^2$
 $y^3 = 2x^2 + x$
 $y = \sqrt[3]{2x^2 + x}$
 $x=1$
 $y = \sqrt[3]{3}$
 تابع است ✓

ب) $|y| + x^2 = x + 3$
 $|y| = -x^2 + x + 3$
 $y = -x^2 + x + 3$
 $y = x^2 - x - 3$
 تابع است ✓
 $x = \cos y$
 $0 = \cos y$
 $y = \frac{\pi}{2}, \frac{3\pi}{2}$
 تابع است ✓



الف) $y = ax + b \rightarrow b = 0, a = 1 \rightarrow a + 2b = 1 + 2(0) = 1$

ب) $y = x^2 + x + b$
 $a + 2b = \frac{4}{9} - \frac{4}{9} = -\frac{4}{9}$
 $-\frac{b}{2a} = 1$
 $-b = 2a \Rightarrow b = -2a$
 $1 = \frac{4}{9} + 2a + b \Rightarrow -\frac{4}{9} - 2a + b$
 $-2 = 2a - \frac{4}{9}$
 $-\frac{14}{9} = 2a$
 $a = -\frac{7}{9}$



نیرنگ آریغ

~~1) $y = \frac{x+2}{x^2-x}$~~ $\frac{-\varepsilon}{-\frac{1}{2} + \frac{1}{2} - \frac{1}{2} + \frac{1}{2}}$
 $\frac{x^2-x}{\varepsilon > 0}$ $D_f = (-\infty, 0) \cup (0, \varepsilon) \cup (\varepsilon, \infty)$

✓ $y = \frac{x-2}{x^2-x}$ $D_f = \mathbb{R}$
 $x^2 - x + 1 > 0 \Delta = 1 - 4 = -3 < 0 \Rightarrow x^2 - x + 1 > 0$

✓ $y = \frac{x+2}{x^2-x}$
 $x^2 - x + 1 > 0$
 $x^2(x^2-x) = 0$
 $x = 0 \vee x = \pm 1$

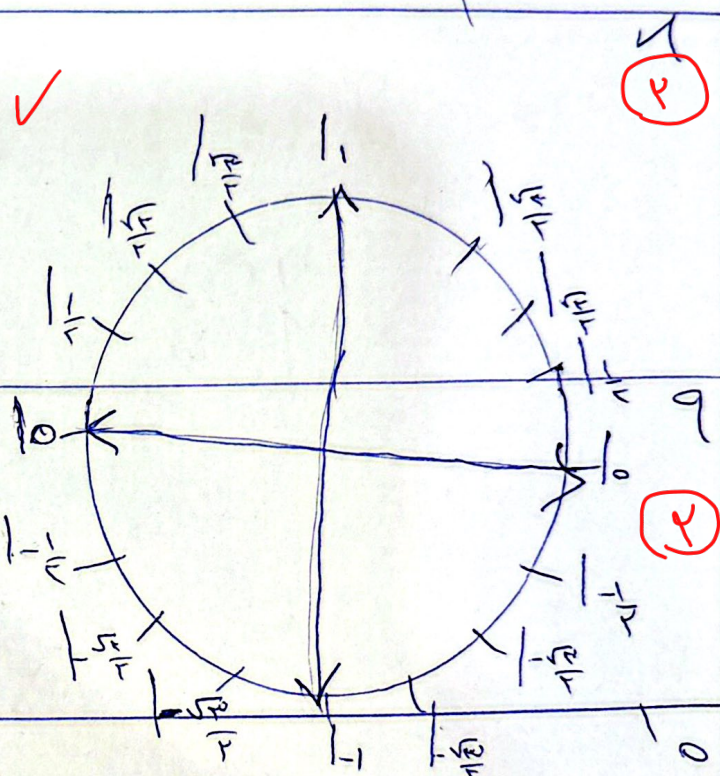
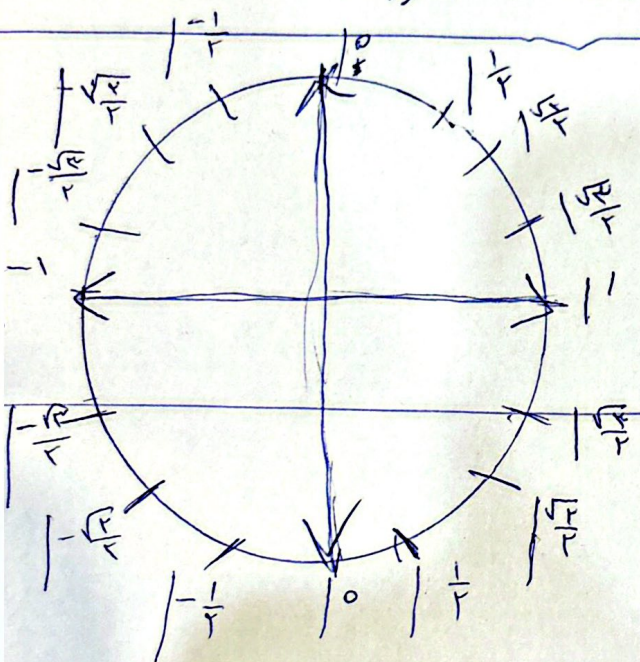
$D_f = \mathbb{R} - \{-1, 0, 1\}$

✓ $y = \frac{x-2}{x^2-x}$ $D_f = \mathbb{R}$
 $x^2 + x + 1 > 0 \Delta = 1 - 4 = -3 < 0 \Rightarrow x^2 + x + 1 > 0$

1) $y = \sqrt{4-x} + \sqrt{x-2} \Rightarrow x \in [2, 4]$ $D_f = [2, 4]$
 $y = x, x = 2 \Rightarrow x \in [2, 4]$

✓ $y = \frac{x+1}{x^2+1} \pm x^2 + 1 > 0 D_f = \mathbb{R}$

✓ $\frac{x-2}{x-2} \Rightarrow x-2 > 0, x-2 \neq 0 \Rightarrow D_f = (2, \infty) \cup (\varepsilon, \infty)$
 $x > 2, x \neq \varepsilon$



الف) $\cos \frac{\pi}{9} = \frac{1}{2} \Rightarrow$ سينوس 30 درجات $\frac{\pi}{9}, \frac{5\pi}{9}$ ✓

ب) $\cos \frac{\pi}{9} = -\frac{\sqrt{3}}{2} \Rightarrow$ سينوس 120, 240 $\frac{\pi}{9}, \frac{5\pi}{9}$ ✓

الف) $y^3 - x = 2x^2$

-۱

تابعی است. $\left. \begin{aligned} y_1^3 - x_1 &= 2x_1^2 \\ y_2^3 - x_2 &= 2x_2^2 \end{aligned} \right\} \xrightarrow{x_1=x_2} \begin{aligned} y_1^3 &= x + 2x^2 \\ y_2^3 &= x + 2x^2 \end{aligned} \rightarrow y_1^3 = y_2^3 \Rightarrow \underline{y_1 = y_2}$

* برای اثبات تابع بودن سایر مثال نقض بزنیم!

ب) $|y| + x^2 = x + 3$

$x=1 \rightarrow |y|=3 \Rightarrow y=\pm 3$ تابع نیست!

از مثال نقض کمک بگیرید

-۳

ب) $y = x^2 + ax + b$ $\min | \quad | \Rightarrow x_5 = 2, y_5 = 1$

$\left. \begin{aligned} x_5 = -\frac{b}{2a} \rightarrow -\frac{a}{2} = 2 \Rightarrow a = -4 \\ y_5 = 1 \rightarrow 1 = (2)^2 - 4(2) + b \Rightarrow b = 5 \end{aligned} \right\} a + 2b = -4 + 2(5) = 6$

-۴

الف) $y = \frac{x+4}{x^2-4x}$

$\rightarrow x^2 - 4x \neq 0 \quad \overset{0}{\uparrow} x(x - \overset{4}{\uparrow}) \neq 0 \quad D_y = \mathbb{R} - \{0, 4\}$