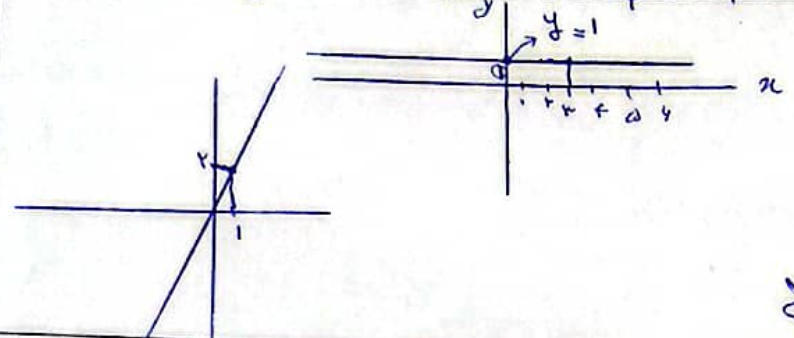


الف) $y^3 - x = 2x^2$ $(x=1)$ $y^3 - 1 = 2$ $y^3 = 3$ $y = \sqrt[3]{3}$ تابع است.
 ب) $|y| + x^2 = x + 2$ $(x=1)$ $|y| + 1 = 2$ $|y| = 1$ $y = \pm 1$ تابع نیست.
 ج) $\sqrt{x-4} + |y-2| = 0$ $x=4$ $y=2$ تابع نیست.
 د) $x = \cos y$

$0 = \cos y$ $90^\circ, 270^\circ$ $\frac{\pi}{2}, \frac{3\pi}{2}$



الف) $y = 1$
 $y = x$

ب) $y = ax + b$
 $y = 2x + b$
 $1 = 2 + b$
 $b = -1$

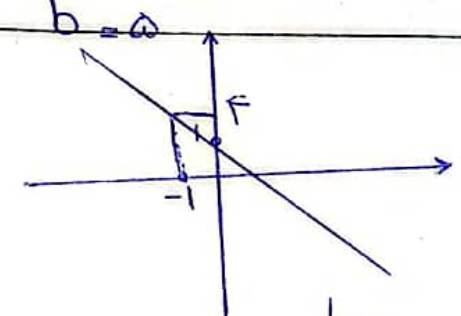
$y = ax + b$
 $x = ax + b$
 $1 + 2(0) = 1$
 $b = 0$ $a = 1$

$y = x^2 + ax + b$

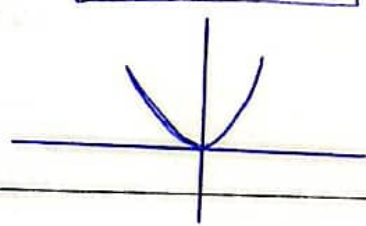
$\frac{-b}{2a} = x$ $\frac{-a}{2} = y$ $a = -2$

ب) $1 = 2 + 2x - 2 + b$
 $b = 0$

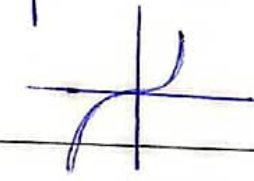
الف) $y = 2x + 1$
 ب) $y = -2x + 1$



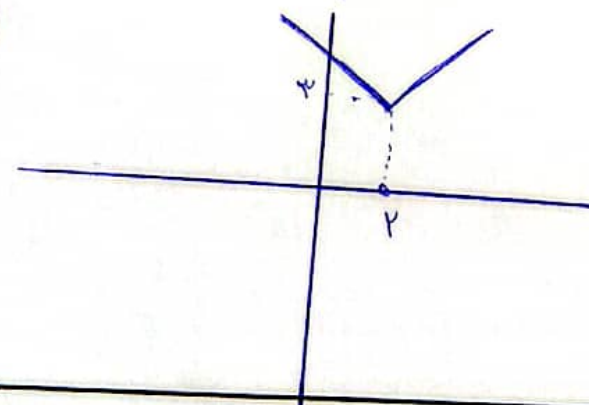
ج) $y = x^2$



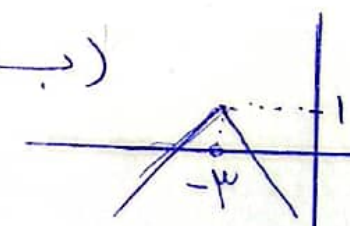
د) $y = x^3$



الف)



ب)



1) $y = \frac{x+r}{x^2-rx}$ $x^2-rx \neq 0$ $x \neq 0$ $x \neq r$ $D_f = \mathbb{R} - \{0, r\}$

2) $y = \frac{x+r}{x^2-rx+1}$ $D_f = \mathbb{R}$

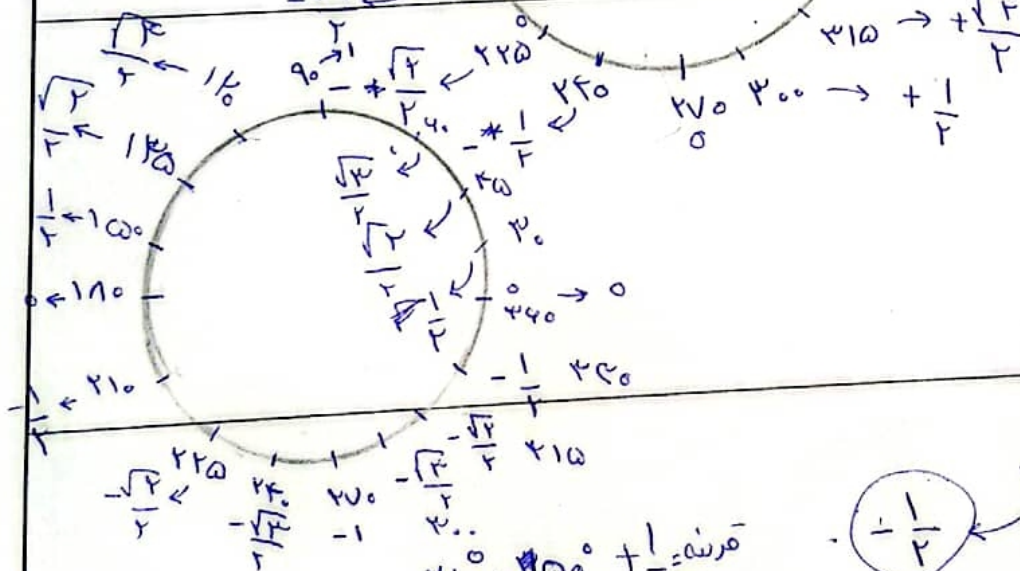
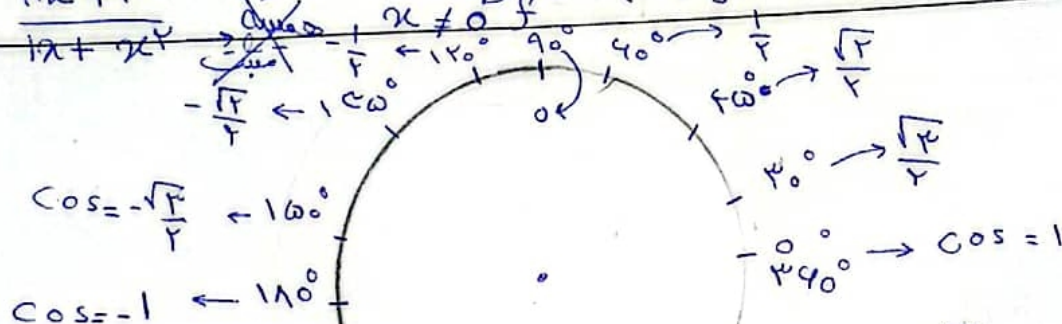
3) $y = \frac{x+r}{x^2-rx}$ $D_f = \mathbb{R}$

4) $y = \frac{x+r}{x^2-rx}$ $D_f = \mathbb{R} - \{0, r, -r\}$

5) $y = \sqrt{4-x} + \sqrt{x-r}$ $4-x \geq 0$ $x-r \geq 0$ $-x \geq -4$ $x \leq 4$ $x \geq r$ $D_f = [r, 4]$

6) $y = \frac{\sqrt{x-r}}{x-r}$ $x-r \geq 0$ $x \geq r$ $x \neq r$ $[r, +\infty) - \{r\}$

7) $y = \frac{rx+r}{x^2-rx}$ $D_f = \mathbb{R} - \{0\}$



8) $y = \frac{1}{x}$ $D_f = \mathbb{R} - \{0\}$

9) $y = \frac{1}{x}$ $D_f = \mathbb{R} - \{0\}$