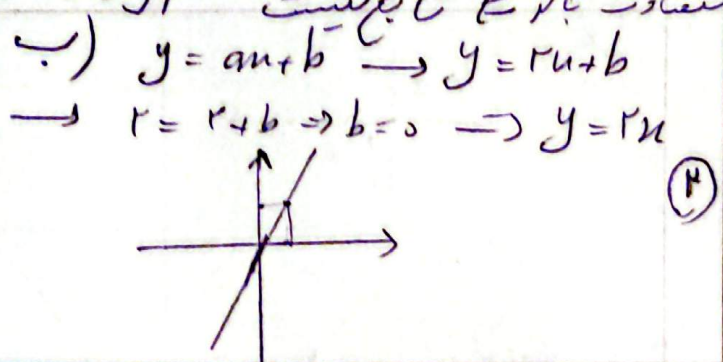
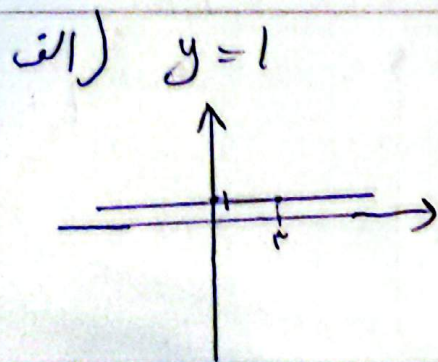


الف) $y^2 = x_1^2 + x_2^2$
 $y^2 = x_1^2 - x_2^2 \Rightarrow y^2 = x_1^2 \Rightarrow y_1 = y_2 \Rightarrow y_1 = y_2$ تابع است
 $y^2 = x_1^2 - x_2^2$

ب) $|y| + x^2 = x + 3$
 $|y| = -x^2 + x + 3 \Rightarrow |y| = |x| \Rightarrow y_1 = \pm y_2$ تابع نیست
 $|y| = -x^2 + x + 3$

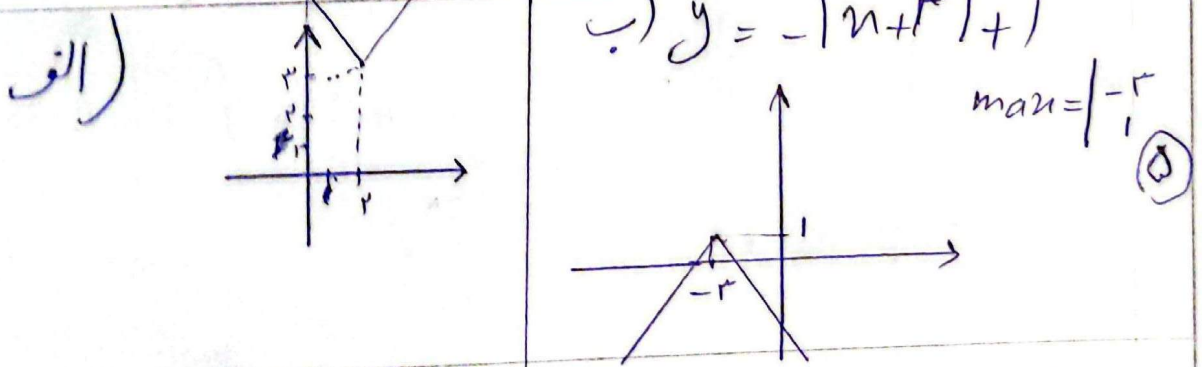
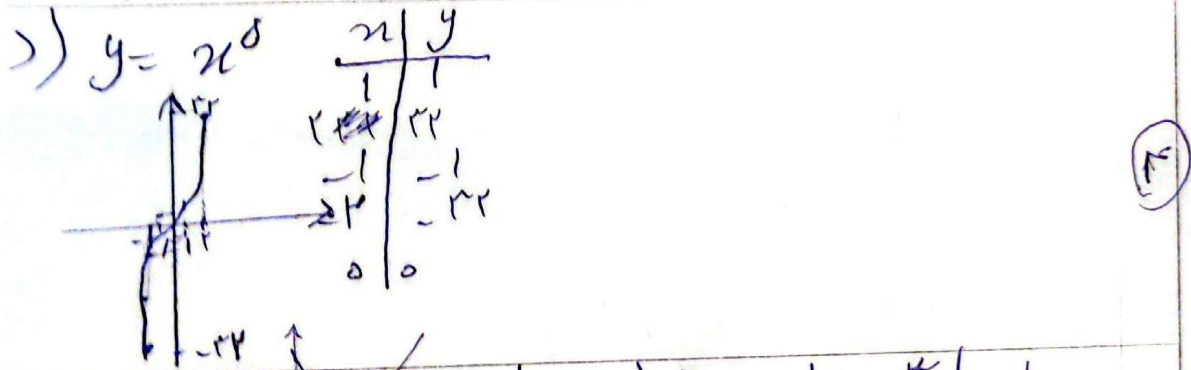
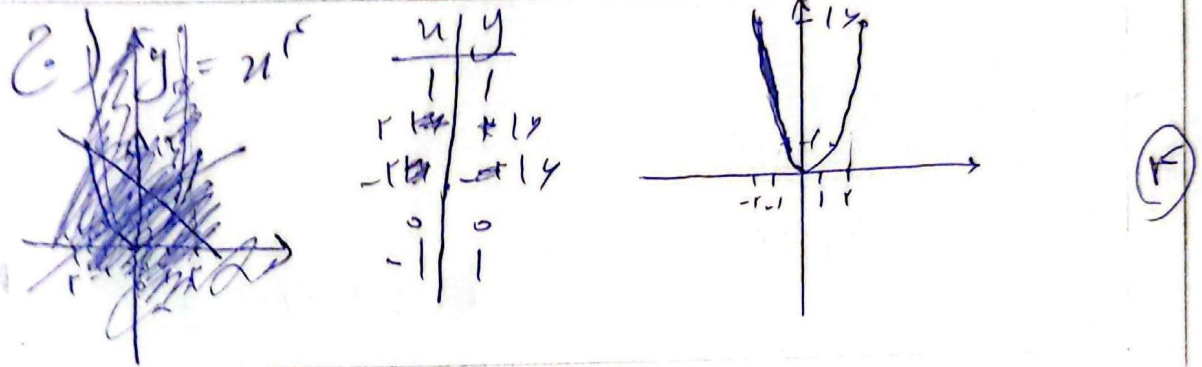
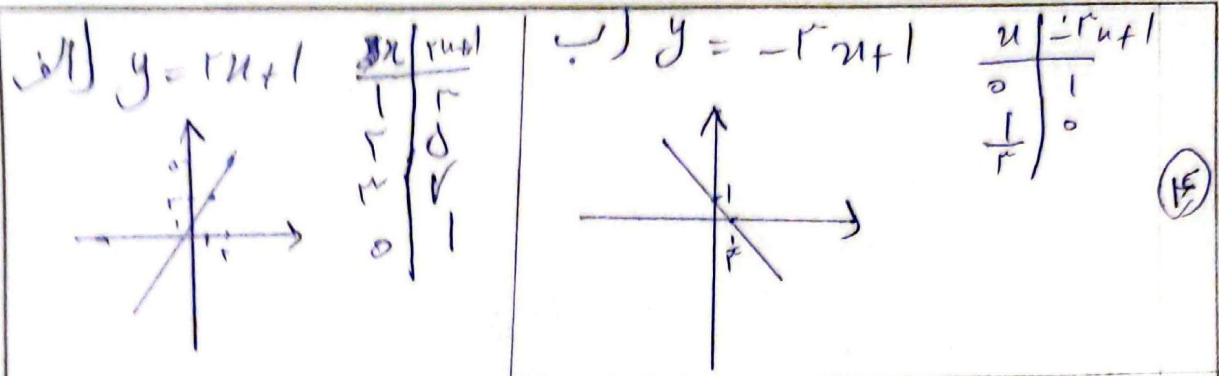
ج) حاصل ضرب عبارت مثبت صفر شده سی هر دو
 $\sqrt{x-2} + |y-2| = 0 \Rightarrow x=2, y=2$ تابع است چون یک نقطه را مشخص می کند
 د) $x = \cos y$
 $x_1 = \cos y_1, x_2 = \cos y_2 \Rightarrow \cos y_1 = \cos y_2 \Rightarrow y_1 = y_2$ تابع نیست



الف) تابع خطی $\Rightarrow a=1, b=0 \Rightarrow a+2b=1$

ب) $\min |r| \Rightarrow x = \frac{-b}{2a} \Rightarrow r = x = \frac{-a}{2}$
 $\Rightarrow a = -r \Rightarrow b = 0$
 $y = x^2 + ax + b$

$a + 2b = -r + 0 = 2$
 $b = 0 \Rightarrow a = -r \Rightarrow 1 = r + 2a + b$
 $-3 = r + b$



الف) $\frac{x-4}{x^2-4x} = \frac{x+4}{x(x-4)} \Rightarrow \text{رابطہ} = R - \{4, 4\}$

تقریبی مشورہ

$$1) y = \frac{x+4}{x^2-7x+12}$$

$$\Delta = b^2 - 4ac$$

$$\Delta = 49 - 48 = 1 \Rightarrow \text{مقادیر جواب دهنده} \Rightarrow \mathbb{R}$$

$$2) y = \frac{x+4}{x^2+4x+4}$$

$$\Delta = b^2 - 4ac$$

$$\Delta = 16 - 16 = 0 \Rightarrow \text{مقادیر جواب دهنده} \Rightarrow \mathbb{R}$$

$$3) y = \frac{x+4}{x^2-4x^2} = \frac{x+4}{x^2(x^2-4)}$$

$$= \frac{x+4}{x^2(x-2)(x+2)}$$

$$\Delta = 16 - 4 = 12$$

$$\Rightarrow \text{مقادیر جواب دهنده} = \mathbb{R} - \{-2, 2\}$$

$$4) y = \sqrt{x-2} + \sqrt{x+2}$$

$$x-2 \geq 0 \quad x+2 \geq 0$$

$$\text{دامنه} = x \geq 2 \cap x \geq -2 = x \geq 2$$

$$5) y = \frac{x+1}{x^2+1}$$

$$\Rightarrow \text{دامنه} = \mathbb{R}$$

$$6) y = \frac{\sqrt{x-2}}{x-4}$$

$$1) x-2 \geq 0$$

$$x \geq 2$$

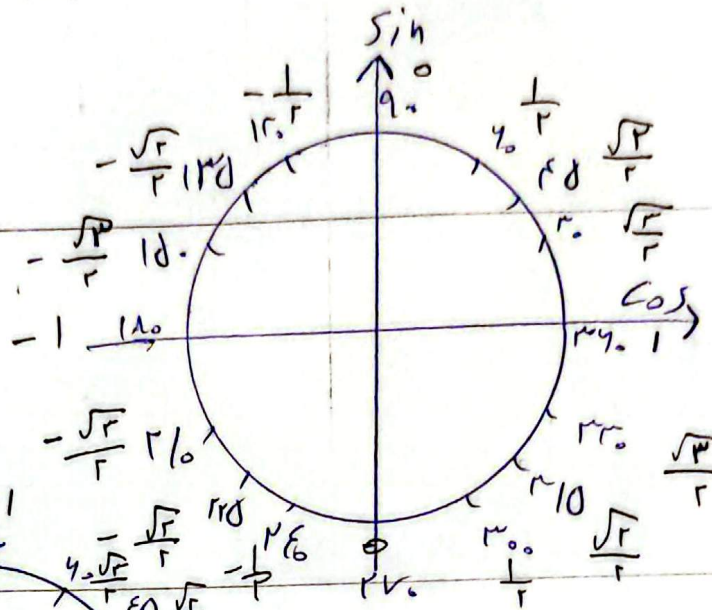
$$2) x \neq 4$$

$$\Rightarrow \text{دامنه} = [2, 4) \cup (4, +\infty)$$

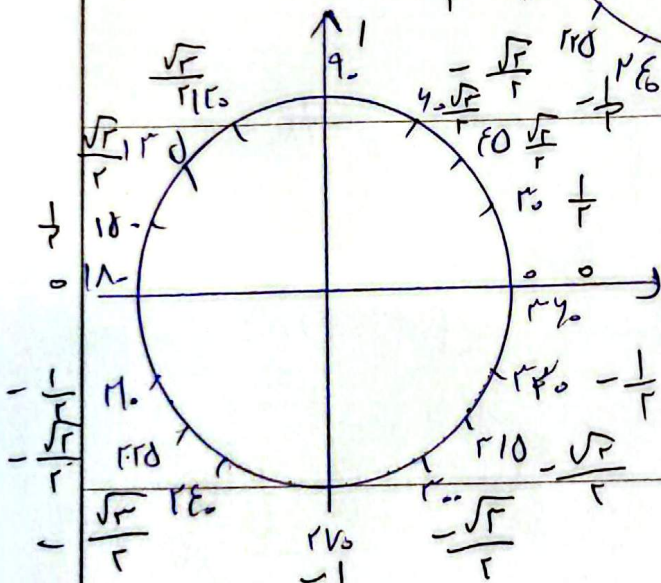
$$3) x \neq 4$$

د) $y = \frac{2u+r}{|u|+4r} \rightarrow |u|+4r \geq 0 \rightarrow \{0\} = R - \text{راسته}$

(۷)



(۸)



(۹)

الف) $\frac{2\pi}{r} = 120^\circ$

$-\cos \frac{2\pi}{r} = -(-\frac{1}{r}) = \frac{1}{r}$

$\cos 120 = -\frac{1}{r} \Rightarrow \frac{1}{r} = \frac{1}{r}$

(۱۰)

$\sin \alpha = \frac{1}{r} \Rightarrow \alpha = \frac{\pi}{6}, \frac{5\pi}{6}$

ب) $\frac{11\pi}{4} = \frac{11 \times 150^\circ}{4} = 330^\circ$

$-\cos 330^\circ = -(\frac{\sqrt{3}}{r}) = -\frac{\sqrt{3}}{r}$

$\sin \alpha = -\frac{\sqrt{3}}{r} \Rightarrow \alpha = \frac{4\pi}{3}, \frac{5\pi}{3}$

(۱۱)