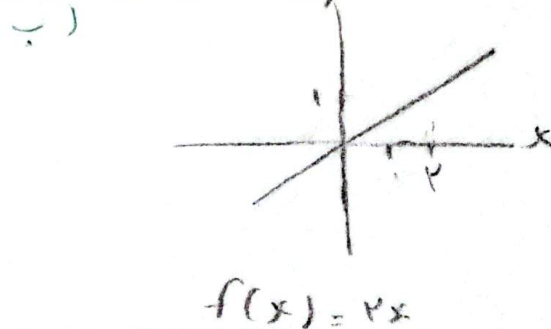
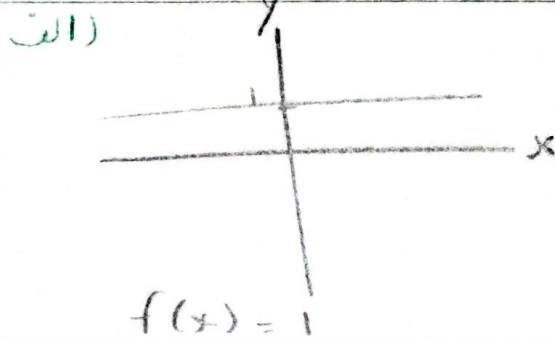


الف) $y^3 - x = x^2$ ✓
 در این معادله درجه ۳ داریم و درجه ۲

ج) $\sqrt{x-4} + |y-2| = 0$ ✗
 مثال نقض: ۵

ب) $|y| + x^2 = x + 3$
 $0 \rightarrow |y| + 0^2 = 0 + 3$
 $|y| = 3 < -3$ ✗

د) $x = \cos y$ ✗
 $0 = \cos 90^\circ$

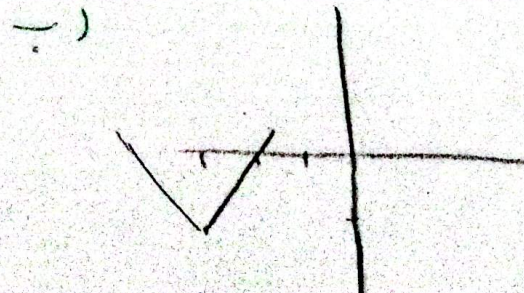
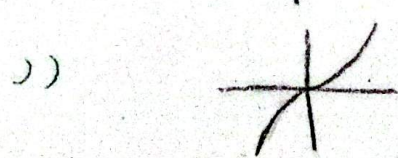


$1 + 2 \times 0 = 1 + 0 = 1$

الف)

$a = -4$
 $1 = (2)^2 + a(2) + b$
 $1 = 4 + -4 \times 2 + b$
 $1 = 4 - 8 + b$
 $1 = -4 + b \rightarrow b = 1 + 4 = 5$
 $a + 2b \rightarrow -4 + 2 \times 5 = -4 + 10 = 6$

۳



۵

$$الف) y = \frac{x+k}{x^2-kx}$$

$$x^2 - kx \neq 0 \quad x=0$$

$$x(x-k) \neq 0 \quad x=k$$

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

$$ب) y = \frac{x+k}{x^2-5x+14} \quad x = -k$$

$$x^2 - 5x + 14 \neq 0 \quad D_f = [-k, +\infty)$$

$$\Delta = (-5)^2 - 4(1 \times 14) = 25 - 56 = -31$$

$$الف) \sqrt{4-x} + \sqrt{x-2}$$

$$4-x \geq 0 \quad x-2 \geq 0$$

$$-x \geq -4 \quad x \geq 2 \rightarrow 2 \leq x \leq 4$$

$$x \leq 4 \quad [2, 4]$$

$$ب) y = \frac{x^2+1}{x^2+1} \quad x^2+1=0$$

$$x^2 = -1$$

$$D_f = \mathbb{R}$$

$$ج) y = \frac{x+k}{x^2+x+k} \quad \Delta = (1)^2 - 4k$$

$$x^2 + x + k \neq 0 \quad \Delta = 1 - 4k$$

$$x = -k \quad D_f = [-k, +\infty)$$

$$د) y = \frac{x+k}{x^2-kx} \quad x^2 - kx = 0 \rightarrow$$

$$x^2 - kx = 0 \rightarrow x(x-k) = 0 \rightarrow x=0 \text{ or } x=k$$

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

$$هـ) y = \frac{x^2-2}{x-k} \quad x^2 - 2 \geq 0 \rightarrow x \geq \sqrt{2}$$

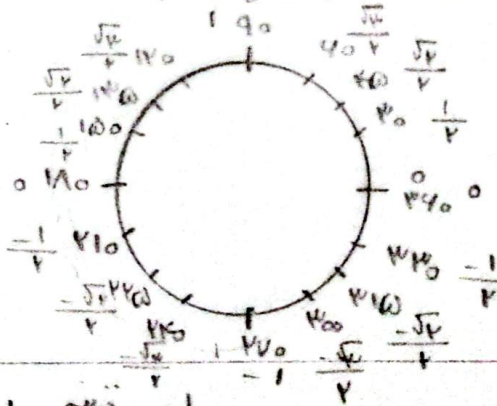
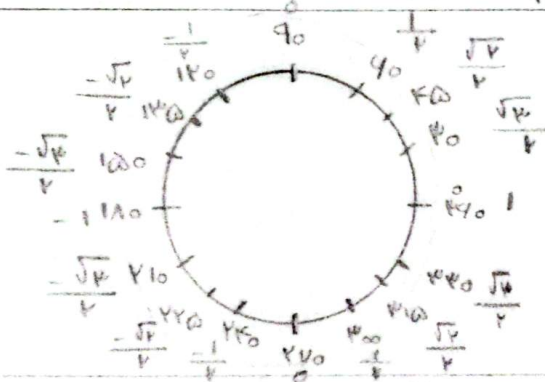
$$x-k=0 \quad x=k$$

$$D_f = [\sqrt{2}, +\infty) - \{k\}$$

$$و) y = \frac{2x+4}{|x|+x^2} \quad |x|+x^2=0$$

$$|x| = -x^2 \rightarrow x=0$$

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



$$\cos \frac{\pi}{3} = \cos 60^\circ = \frac{1}{2} \rightarrow \frac{1}{2}$$

$$\sin \frac{\pi}{3} = \sin 60^\circ = \frac{\sqrt{3}}{2}$$

$$\cos \frac{2\pi}{3} = \cos 120^\circ = -\frac{1}{2} \rightarrow -\frac{1}{2}$$

$$\sin \frac{2\pi}{3} = \sin 120^\circ = \frac{\sqrt{3}}{2}$$

الف)

ب)