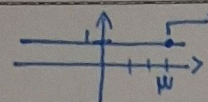
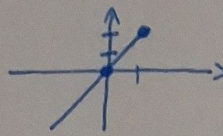
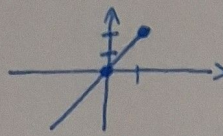
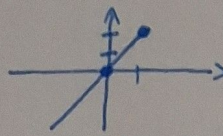
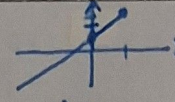
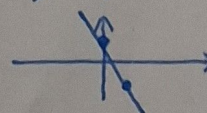


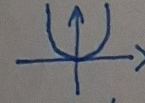
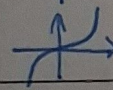
الف) $y^3 - x = 2x^2 \rightarrow y^3 = 2x^2 + x \xrightarrow{x=1} y^3 = 3 \rightarrow y = \sqrt[3]{3} \checkmark$ تابع مستقیم
 $x=2 \rightarrow y^3 = 10 \rightarrow y = \sqrt[3]{10} \checkmark$
 ب) $|y| + x^2 = x + 3 \xrightarrow{x=0} |y| = 3 \rightarrow y = \pm 3 \times$ تابع مستقیم
 ج) $\sqrt{x-k} + |y-2| = 0 \rightarrow \sqrt{x-k} = 0 \rightarrow x=k$ و $|y-2| = 0 \rightarrow y=2$ $\checkmark$ تابع مستقیم
 د) $x = \cos y \xrightarrow{x=0} \cos y = 0 \rightarrow y = 90^\circ, 270^\circ \times$ تابع مستقیم

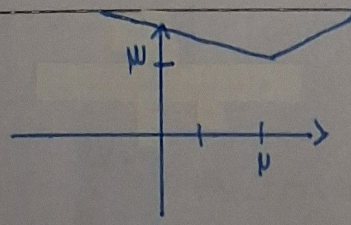
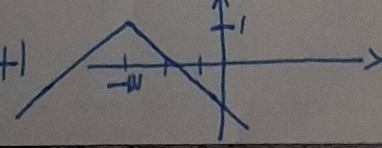
الف) $y = k \rightarrow$  $\rightarrow y=1$ یا $y=0 \times x+1$ ضابطه

ب) $y = ax + b \rightarrow y^2x$  $\rightarrow y^2x$ ضابطه
 ب) $y = ax + b \rightarrow y^2x$  $\rightarrow y^2x$ ضابطه
 ب) $y = ax + b \rightarrow y^2x$  $\rightarrow y^2x$ ضابطه

الف) تابع مماس $y=x \rightarrow y=ax+b=x \rightarrow ax+b=x \rightarrow a=1$ و $b=0$
 $a+2b=1+0=1$
 ب) $\left[\begin{matrix} 1 \\ 1 \end{matrix} \right] \min \rightarrow a > 0$ $\xrightarrow{x^2 \text{ ضریب}} \frac{-\Delta}{4a} = 1 \rightarrow \frac{-b^2+4ac}{4a} \rightarrow \frac{-k^2+4c}{4} = 1 \rightarrow -k^2+4c=4 \rightarrow k^2=4c-4 \rightarrow k=\pm\sqrt{4c-4}$
 $\xrightarrow{x^2 \text{ ضریب}} \frac{-b}{a} = 1 \rightarrow -b = 1 \rightarrow b = -1$ $\rightarrow y = x^2 - 2x + 1 \rightarrow c=1$
 $\rightarrow a^2+b^2 = k^2+1 = 4$

الف) $y = 2x + 1 \rightarrow x=0 \rightarrow y=1$ و $x=1 \rightarrow y=3$ 
 ب) $y = -3x + 1 \rightarrow x=0 \rightarrow y=1$ و $x=1 \rightarrow y=-2$ 

ج) $y = x^2$ 
 د) $y = x^3$ 

الف) $y = |x-2| + 3$ 
 ب) $y = -|x+3| + 1$ 

$$1) y = \frac{x+k}{x^2-kx} \rightarrow \frac{x+k}{x(x-k)} \rightarrow x(x-k) \neq 0 \rightarrow x \neq 0$$

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

$$2) y = \frac{x+k}{x^2-14x+19} \rightarrow \Delta: b^2-4ac \rightarrow 196-76 = -120 \rightarrow D_f = \mathbb{R}$$

$$3) y = \frac{x+k}{x^2+x+k} \rightarrow \Delta: b^2-4ac \rightarrow 1-4 = -3 \rightarrow D_f = \mathbb{R}$$

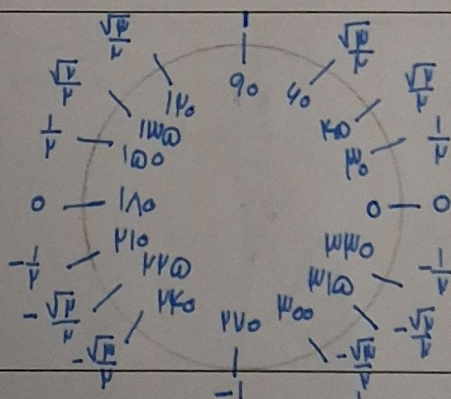
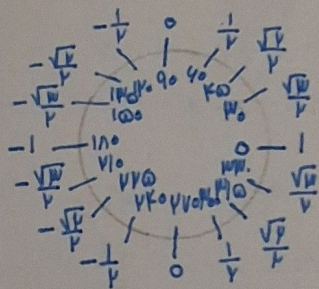
$$4) y = \frac{x+k}{x^2-kx^2} \rightarrow \frac{x+k}{x^2(x^2-k)} \rightarrow \frac{x+k}{x^2(x^2-k)} \rightarrow D_f = \mathbb{R} - \{0, \sqrt{k}, -\sqrt{k}\}$$

$$5) y = \sqrt{4-x} + \sqrt{x-1} \rightarrow \begin{cases} 4-x \geq 0 \rightarrow x \leq 4 \\ x-1 \geq 0 \rightarrow x \geq 1 \end{cases} \rightarrow D_f = [1, 4]$$

$$6) \frac{x+1}{x^2+1} \rightarrow \begin{cases} x^2+1 \neq 0 \text{ always} \end{cases} \rightarrow D_f = \mathbb{R}$$

$$7) \frac{\sqrt{x-1}}{x-k} \rightarrow \begin{cases} x-1 \geq 0 \rightarrow x \geq 1 \\ x-k \neq 0 \rightarrow x \neq k \end{cases} \rightarrow D_f = [1, +\infty) - \{k\}$$

$$8) \frac{x+1}{|x|+x^2} \rightarrow |x|+x^2 \neq 0 \text{ always} \rightarrow D_f = \mathbb{R}$$



$$9) -\cos \frac{\pi}{4} \rightarrow -\cos 45^\circ \rightarrow \left| -\frac{1}{\sqrt{2}} \right| \rightarrow -\cos 135^\circ = \frac{1}{\sqrt{2}}$$

$$\rightarrow \sin \frac{\pi}{4} \cdot \sin \frac{\pi}{4}$$

$$10) -\cos \frac{11\pi}{4} \rightarrow -\cos 330^\circ \rightarrow \left| +\frac{\sqrt{3}}{2} \right| \rightarrow -\cos 210^\circ = -\frac{\sqrt{3}}{2}$$

$$\rightarrow \sin \frac{5\pi}{4} \cdot \sin \frac{3\pi}{4}$$