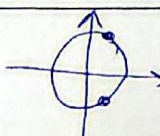
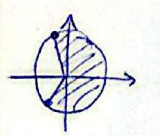


$f(m) = \sqrt{4m+b}$	باتوجه به بازه تابع می‌توانست $a=2 \Leftarrow a-2=0$ $\sqrt{4+b}=0 \Rightarrow 4+b=0 \Rightarrow b=-4$ $f(m) \geq 0$ $\Rightarrow 3=a$	۱
$x^2 + 2mx + 2 - m^2 \geq 0$ $(m+1)^2 + 1 - m^2 \geq 0$ $\Rightarrow m^2 \leq 1 \Rightarrow -1 \leq m \leq 1$ $\min \qquad \qquad \qquad \max$	$\Rightarrow 1 - (-1) = 2$	۲
$4 - x^2 \geq 0$ $x^2 \leq 4$ $-2 \leq x \leq 2$ ①	$[x] + [-x] + 1 \neq 0$ $[x] - [-x] \neq -1 \rightarrow \text{طبق قیاس} \rightarrow \mathbb{Z}$ ② و ③ $D_f = \{-2, -1, 0, 1, 2\} \rightarrow$ مجموعه	۳
الف) $x^3 + 3x^2 \geq 0$ $x^2(x+3) \geq 0$ $\Rightarrow D_f = [-3, +\infty)$	ب) $(x+1)(x-1)x^2(x-3) \geq 0$ $\Delta < 0 \Rightarrow$ همیشه مثبت $\Rightarrow D_f = (-\infty, -1] \cup [3, +\infty) \cup \{0\}$	۴
الف) $x-2 - 3 \geq 0$ $ x-2 \geq 3$ $x-2 \geq 3 \quad -2 \geq x-2$ $x \geq 5 \quad -1 \geq x$ $\Rightarrow (-\infty, -1] \cup [5, +\infty)$	ب) $4 - 2-x \geq 0$ $ 2-x \leq 4$ $-4 \leq 2-x \leq 4 \Rightarrow D_f = [-2, 4]$ $-4 \leq -x \leq 2$ $4 \geq x \geq -2$	۵

الف) $1 - n n \geq 0$ $n n \leq 1$ $n=0 \rightarrow \checkmark$ $n=1 \rightarrow \checkmark \Rightarrow D_f = (-\infty, 1]$ $n=(0,1] \checkmark$	ب) $\sqrt{3} - n-1 \geq 0 \Rightarrow \sqrt{3} - n-1 - 1 \neq 0$ $n-1 \leq \sqrt{3} \Rightarrow \sqrt{3} - n-1 \neq 1$ $\sqrt{3} \leq n-1 \leq \sqrt{3} \Rightarrow \sqrt{3} - n-1 \neq 1$ $\sqrt{3} \leq n \leq 1 \Rightarrow n-1 \neq \sqrt{3}$ $n-1 \neq \sqrt{3} \Rightarrow n \neq 1+\sqrt{3}$ $n-1 \neq -\sqrt{3} \Rightarrow n \neq 1-\sqrt{3}$ $\Rightarrow D_f = [\sqrt{3}, 1] - \{1+\sqrt{3}, 1-\sqrt{3}\}$	6
الف) $\cos n \neq 0$  $\Rightarrow D_f = \mathbb{R} - \{k\pi + \frac{\pi}{2}\}$	ب) $\cos n - 1 \neq 0$ $\cos n \neq 1$ $\cos n \neq \frac{1}{\sqrt{2}}$  $\Rightarrow D_f = \mathbb{R} - \{2k\pi \pm \frac{\pi}{\sqrt{2}}\}$	7
الف) $x_{n+1} - x_n + 3 \neq 0$ $x_{n+1} \neq x_n + 3$ $x_{n+1}^2 + \epsilon x_n \neq x_n^2 + 9 + 4x_n$ $x_{n+1}^2 - 1 - 2x_n \neq 0$ $\Rightarrow D_f = \mathbb{R} - \{\frac{\epsilon}{2}, \frac{3}{2}\}$	ب) $x_{n+1} - x_n + 3 \geq 0$ $x_{n+1} \geq x_n + 3$ $\epsilon x_{n+1}^2 + \epsilon x_n \geq x_n^2 + 9 + 4x_n$ $x_{n+1}^2 - x_n - 1 \geq 0$ $\Rightarrow D_f = (-\infty, -\frac{\epsilon}{2}] \cup [\frac{3}{2}, \infty)$	8
$x_{n+1} - 1 > 0$ $n > \frac{1}{\sqrt{2}}$ $\log_{\omega}(x_{n+1}) > 0$ $x_{n+1} - 1 > 1$ $n > 1$	$\log_{\omega} \log_{\omega}(x_{n+1}) \geq 0$ $\log_{\omega}(x_{n+1}) \leq 1$ $x_{n+1} - 1 \leq \omega$ $n \leq 3$ $\Rightarrow D_f = (1, 3]$	9
الف) $\cos n + 1 > 0$ $\cos n > -1$ $\cos n > -\frac{1}{\sqrt{2}}$  $\Rightarrow D_f = [2k\pi - \frac{\pi}{\sqrt{2}}, 2k\pi + \frac{\pi}{\sqrt{2}}]$	ب) $\frac{n-1}{n+1} > 0 \Rightarrow \frac{1}{1+\phi-b+\dots}$ $\log \frac{n-1}{n+1} \geq 0 \Rightarrow \frac{n-1}{n+1} \geq 1 \Rightarrow \frac{n-1-n-1}{n+1} \geq 0$ $\Rightarrow \frac{-2}{n+1} \geq 0 \Rightarrow \frac{1}{1+\phi-b+\dots}$ $\Rightarrow (-\infty, -1)$	10