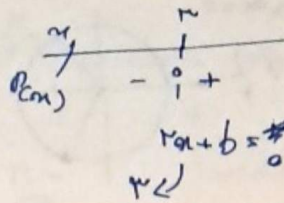


پیدا کردن دامنه تابع $f(x) = \sqrt{ax+b}$ از روش زیر.

$$\sqrt{ax+b} = f(x)$$



۱- عبارت درجه است، $a=2$

$$ax+b \geq 0 \Rightarrow b = -4$$

۲- دامنه اعداد صحیح باشد عبارت زیر را می توان نوشت $x^2+2x+2-m^2 \geq 0 \Rightarrow \Delta \leq 0 \Rightarrow 4-4(2-m^2) \leq 0$

$$m^2-1 \geq 0 \Rightarrow -1 \leq m \leq 1 \quad \begin{matrix} \text{انتهای} \\ \text{دامنه} \end{matrix} \quad \begin{matrix} \text{min} m = -1 \\ \text{max} m = 1 \end{matrix}$$

$$\frac{\sqrt{x-m^2}}{[m]+[-m]+1}$$

$$x-m^2 \geq 0 \Rightarrow -2 \leq m \leq 2$$

$$Df = \{x \mid x \in \mathbb{R}, -2 \leq x \leq 2\}$$

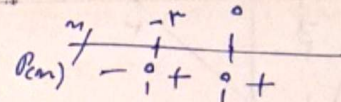
اعداد صحیح $-2, -1, 0, 1, 2$

$$\begin{matrix} x \in \mathbb{R} \Rightarrow 0 \\ x \in \mathbb{R} - \mathbb{Z} \Rightarrow -1 \end{matrix} \quad +1 \quad \begin{matrix} x \in \mathbb{Z} \Rightarrow 1 \\ x \in \mathbb{R} - \mathbb{Z} \Rightarrow 0 \end{matrix} \quad x \in \mathbb{R}$$

الف) $\sqrt{x^3+x^2}$

$$x^3+x^2 \geq 0$$

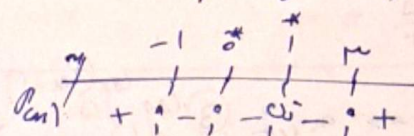
$$x^2(x+1) \geq 0$$



$$Df = [-1, \infty)$$

ب)

$$\sqrt{\frac{(x^2-1)(x^2-x^3)}{x^3-1}} \quad \begin{matrix} x^2(x-1) \\ x^3 \\ A \geq 0 \end{matrix}$$



$$Df = (-\infty, -1] \cup \{0\} \cup [2, \infty)$$

الف) $\sqrt{|x-2|-2}$

$$|x-2|-2 \geq 0$$

$$x-2 \geq 2 \Rightarrow x \geq 4$$

$$x-2 \leq -2 \Rightarrow x \leq -1$$

$$Df = (-\infty, -1] \cup [4, \infty)$$

ب) $\sqrt{\frac{x-1}{x-2}}$

$$\frac{x-1}{x-2} \geq 0$$

$$x-1 \geq 0 \Rightarrow x \geq 1$$

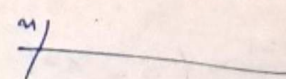
$$x-2 \leq 0 \Rightarrow x \leq 2$$

$$Df = [1, 2]$$

الف)

$$1-|x| \geq 0$$

$$|x| \leq 1$$



$$Df = (-\infty, 1]$$

ب)

①

$$x-|x-2| \geq 0$$

$$-2 \leq x-2 \leq 2 \Rightarrow 0 \leq x \leq 4$$

$$Df = [2, 3] \cup (3, 4] \cup (4, 5]$$

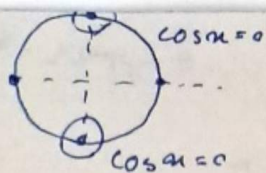
②

$$\sqrt{x-|x-2|} - 1 \neq 0$$

$$x-|x-2| \neq 1$$

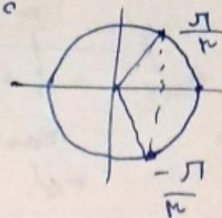
$$|x-2| \neq 1$$

$$x \neq 1, x \neq 3$$

الف) $\cos u \neq 0 \Rightarrow$ 

$D_f = \mathbb{R} - \left\{k\pi + \frac{\pi}{2}\right\}$

ب) $r \cos u - 1 \neq 0 \Rightarrow \cos u \neq \frac{1}{r}$



$D_f = \mathbb{R} - \left\{k\pi \pm \frac{\pi}{r}\right\}$

الف) $|r_{n+1}| - |n+r| = 0 \Rightarrow$ ① $r_{n+1} = \pm(n+r)$

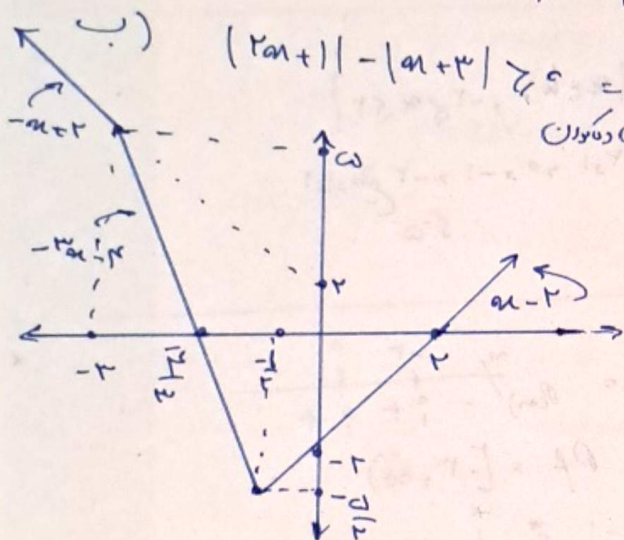
$D_f = \mathbb{R} - \left[r, -\frac{r}{r}\right]$

② $(n+r) + (n+r) = n^2 + 4n + 4$

$r_{n+1}^2 - r_{n+1} - 1 \leq 0 \Rightarrow n^2 - r_{n+1} - r \leq 0$

$(n - \frac{r}{r})(n + \frac{r}{r})$

$D_f = (-\infty, -\frac{r}{r}] \cup [r, \infty)$

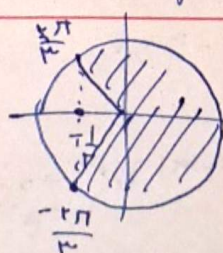


① $r_{n+1} > 0 \Rightarrow n > \frac{1}{r}$

② $\log_{\frac{r}{r}} r_{n+1} > 0 \Rightarrow r_{n+1} > 1 \Rightarrow n > 1$

$D_f = [1, r]$

الف) $r \cos u + 1 > 0 \Rightarrow \cos u > -\frac{1}{r}$



$D_f = \left(k\pi - \frac{\pi}{r}, k\pi + \frac{\pi}{r}\right)$

ب) ① $\frac{n-1}{n+1} > 0 \Rightarrow n < -1$ or $n > 1$

$(-\infty, -1) \cup (1, \infty)$

② $\log_{\frac{n-1}{n+1}} \frac{n-1}{n+1} > 0 \Rightarrow \frac{n-1}{n+1} > 1 \Rightarrow \frac{n-1}{n+1} - 1 > 0$

$\frac{-r}{n+1} > 0$

$n < -1$

$D_f = (-\infty, -1)$