

۱. آزمون عالی نوشتن

$$a - 2 = 0 \Rightarrow a = 2$$

$$2x + b \geq 0 \quad x \geq \frac{-b}{2} \quad \frac{-b}{2} = 3 \Rightarrow b = -6$$

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$$\Delta \leq 0$$

$$4 - 4(2 - m^2) \leq 0$$

$$4 - 4 + 4m^2 \leq 0$$

$$4m^2 - 4 \leq 0$$

$$4(m^2 - 1) \leq 0 \quad \frac{+}{+} \frac{-}{-} \frac{+}{+} \quad [-1, 1] \Rightarrow 1 - (-1) = 2$$

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$$\left. \begin{array}{l} 4 - x^2 \geq 0 \quad 4 \geq x^2 \quad -2 \leq x \leq 2 \\ [x] + [-x] \neq -1 \Rightarrow \mathbb{Z} \end{array} \right\} \Rightarrow \underline{[5, 6]}$$

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$$\text{الف) } x^2(x+3) \geq 0 \quad \frac{-3}{+} \frac{0}{+} \frac{+}{+} \Rightarrow D_f = [-3, +\infty)$$

$$\text{ب) } \frac{(x+1)(x-1)x^2(x-3)}{(x-1)(x^2+x+1)} \quad \frac{-1}{+} \frac{0}{+} \frac{1}{-} \frac{3}{+} \Rightarrow D_f = (-\infty, -1] \cup \{0\} \cup [3, +\infty)$$

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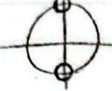
$$\text{الف) } |x-2| - 3 \geq 0 \quad |x-2| \geq 3 \quad x-2 \geq 3 \quad x \geq 5$$

$$\text{ب) } 4 - |2-x| \geq 0 \quad 4 \geq |2-x| \quad -4 \leq 2-x \leq 4 \quad -6 \leq -x \leq 2 \quad D_f = [-2, 6]$$

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الف) $1 - n/n \geq 0 \quad 1 \geq n/n \Rightarrow D_f = (-\infty, 1]$

ب) $3 - |n - 5| \geq 0 \quad 3 - |n - 5| \neq 1$
 $3 \geq |n - 5| \quad |n - 5| \neq 2 \Rightarrow D_f = [2, 8] - \{3, 7\}$
 $-3 \leq n - 5 \leq 3 \quad n - 5 \neq 2 \quad n - 5 \neq -2$
 $2 \leq n \leq 8 \quad n \neq 7 \quad n \neq 3$

الف) $\cos n \neq 0$  $\mathbb{R} - \{k\pi \pm \frac{\pi}{2}\}$

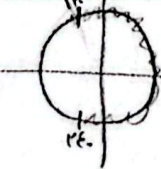
ب) $2 \cos n - 1 \neq 0 \quad \cos n \neq \frac{1}{2}$  $\mathbb{R} - \{k\pi \pm \frac{\pi}{3}\}$

الف) $|r_{n+1}| \neq |n+3| \quad (r_{n+1})^2 \neq (n+3)^2$
 $r_{n+1}^2 + 1 + r_n \neq n^2 + 9 + 6n \quad r_{n+1}^2 \neq 1 + r_n \quad (r_{n+1}^2 - r_n - 1) \neq 0$
 $D_f = \mathbb{R} - \{\frac{r_n - 1}{2}\}$
 ب) $|r_{n+1}| \geq |n+3|$
 $r_{n+1}^2 + 1 + r_n \geq n^2 + 9 + 6n \quad r_{n+1}^2 \geq r_n + 8 \quad (n-4)(n+4) \geq 0 \Rightarrow D_f = (-\infty, -4] \cup [4, +\infty)$

$r_{n-1} > 0$
 $\boxed{n > \frac{1}{r}}$
 $\log_a r_{n-1} > 0$
 $r_{n-1} > 1$
 $\boxed{n > 1}$

$\log_a \log_a (r_{n-1}) \geq 0$
 $-\log_r \log_a r_{n-1} \geq 0$
 $r_{n-1} \leq a$
 $\boxed{n \leq 3}$

$D_f = (1, 3]$

الف) $2 \cos n + 1 > 0$
 $\boxed{\cos n > -\frac{1}{2}}$ 

ب) $\frac{n-1}{n+1} > 0$
 $\log_{10} \frac{n-1}{n+1} \geq 0$
 $\frac{n-1}{n+1} \geq 1 \Rightarrow \frac{n-1}{n+1} - 1 \geq 0 \Rightarrow \frac{n-1-n-1}{n+1} \geq 0 \Rightarrow \frac{-2}{n+1} \geq 0$
 $n+1 < 0 \Rightarrow n < -1$
 $D_f = (-\infty, -1)$