

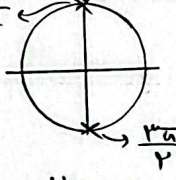
۲. آزمون عالی نورس ۱۳۹۸

$(a-p)x^p + ax + b > 0$ $D_f = [p, +\infty)$ ب) $a-p=0 \rightarrow a=p$ پس $2x+b > 0 \xrightarrow{x=p} 4+b=0 \rightarrow b=-4$	۱
$x^p + px + p - m^p > 0$ $D_f = R \rightarrow \Delta < 0 \rightarrow b^p - 4ac < 0 \rightarrow p - 4(p-m^p) < 0$ ب) $\frac{p}{4} < p - m^p \rightarrow m^p < \frac{3p}{4}$ پس $1 < p - m^p \rightarrow m^p < 1 \rightarrow -1 < m < 1$ $\overline{\max m} = 1$ ← بیشترین $\overline{\min m} = -1$ ← کمترین	۲
$F - x^p > 0 \rightarrow F > x^p \rightarrow x^p < F \rightarrow \overline{x^p} < F$ $[x] + [-x] + 1 \neq 0 \rightarrow [x] + [-x] = -1$ ب) $[x] + [-x] \xrightarrow{x \in \mathbb{Z}} 0$ $\xrightarrow{x \notin \mathbb{Z}} -1$	۳
الف) $x^w + wx^p > 0 \rightarrow x^p(x+w) > 0$ $D_f = [-w, +\infty)$ ب) $(x^p-1)(x^w-wx^p) > 0 \rightarrow \frac{(x^p-1)(x^w-wx^p)}{x^w-1}$ پس $\Delta = b^2 - 4ac = 1 - F < 0$ پس $D_f = (-\infty, -1] \cup \mathbb{Z} \cup [p, +\infty)$	۴
الف) $(x-p) - w > 0 \rightarrow x-p > w \rightarrow x-p > w \rightarrow x > w$ $x-p < -w \rightarrow x < -1$ ب) $y = \sqrt{F - p-x }$ پس $F - p-x > 0 \rightarrow F > p-x \rightarrow p-x < F \rightarrow -F < p-x < F$ پس $-4 < -x < 2 \rightarrow 4 > x > -2$	۵

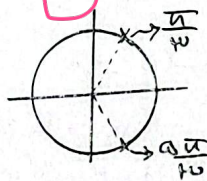
$|n| \geq 0 \rightarrow \begin{cases} x > 0 \rightarrow 1 - x^p > 0 \rightarrow 1 > x^p \rightarrow x^p < 1 \rightarrow -1 < x < 1 \xrightarrow{x > 0} [0, 1] \\ x < 0 \rightarrow 1 + x^p > 0 \rightarrow x^p > -1 \rightarrow 1 > |x| \rightarrow -1 < x < 1 \xrightarrow{x < 0} [-1, 0] \end{cases}$
 $[(-\infty, 1] \cup [-1, \infty)] = \mathbb{R}$

ب) $\mu - |n - \omega| > 0 \rightarrow \mu > |n - \omega| \rightarrow |n - \omega| < \mu$
 $\mu - |n - \omega| \neq 1 \rightarrow |n - \omega| = \mu \rightarrow -\mu < n - \omega < \mu \rightarrow \mu < n < 1 + \mu$
 $n - \omega = \mu \rightarrow n \neq \omega + \mu$
 $n - \omega = -\mu \rightarrow n \neq \omega - \mu$
 $D_f = \{ \mu, \mu \} \cup \{ \mu, \mu \} \cup \{ \mu, \mu \}$

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ج) $\cos x \neq 1 \xrightarrow{\frac{\pi}{p}}$  $D_f = \mathbb{R} - \{ k\pi + \frac{\pi}{p}, k\pi + \frac{2\pi}{p} \}$

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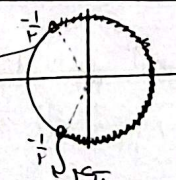
ب) $\mu \cos n - 1 = 0 \rightarrow \mu \cos n = 1 \rightarrow \cos n = \frac{1}{\mu}$ 
 $D_f = \mathbb{R} - \{ k\pi + \arccos(\frac{1}{\mu}), k\pi - \arccos(\frac{1}{\mu}) \}$

ج) $|mu + 1| - |mu + mu| = 0 \rightarrow |mu + 1| = |mu + mu| \rightarrow \begin{cases} mu + 1 = mu + mu \rightarrow \mu = 1 \\ mu + 1 = -mu - mu \rightarrow mu = -1 \rightarrow \mu = -1 \end{cases}$
 $D_f = \mathbb{R} - \{ \mu, -\frac{F}{\mu} \}$
 ب) $|mu + 1| - |mu + mu| > 0 \rightarrow |mu + 1| > |mu + mu| \rightarrow (mu + 1)^2 > (mu + mu)^2$
 $\mu^2 + 2\mu + 1 > \mu^2 + 4\mu + 4 \rightarrow 2\mu + 1 > 4\mu + 4 \rightarrow -2\mu > 3 \rightarrow \mu < -\frac{3}{2}$
 $\mu(\mu - \frac{3}{2}) > 0 \rightarrow \mu < -\frac{3}{2} \text{ or } \mu > 0$
 $D_f = (-\infty, -\frac{3}{2}) \cup (0, \infty)$

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$\log_{\omega} \log_{\omega}^{(mu-1)} \geq 0 \rightarrow \begin{cases} \mu - 1 > 0 \rightarrow \mu > 1 \rightarrow \log_{\omega} \mu > 0 \rightarrow \mu > 1 \\ \mu - 1 < 0 \rightarrow \mu < 1 \rightarrow \log_{\omega} \mu < 0 \rightarrow \mu < 1 \end{cases}$
 $\log_{\omega} \mu > 0 \rightarrow \mu > 1 \rightarrow \log_{\omega} \mu > 0 \rightarrow \mu > 1$
 $\log_{\omega} \mu < 0 \rightarrow \mu < 1 \rightarrow \log_{\omega} \mu < 0 \rightarrow \mu < 1$
 $D_f = [1, \infty)$

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ج) $\mu \cos n + 1 > 0 \rightarrow \mu \cos n > -1 \rightarrow \cos n > -\frac{1}{\mu}$ 
 $D_f = (k\pi - \arccos(\frac{1}{\mu}), k\pi + \arccos(\frac{1}{\mu}))$
 ب) $\log_{\omega} \frac{x-1}{x+1} > 0 \Rightarrow \frac{x-1}{x+1} > 1 \rightarrow \frac{x-1}{x+1} - 1 > 0 \rightarrow \frac{x-1-x-1}{x+1} > 0 \rightarrow \frac{-2}{x+1} > 0 \rightarrow x < -1$
 $D_f = (-\infty, -1)$

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