

مثال $f(x) = \sqrt{(a-x)x - a}$ $\leadsto P_f = [a, \infty)$ $\rightarrow$ جواب نهایی
 $a-x \geq 0 \rightarrow a \geq x$ $\leftarrow$ داریم و مثبت نمی‌باشد
 $a+x \geq 0 \rightarrow x \geq -a \rightarrow \boxed{b = -a}$

$f(x) = \sqrt{\frac{x^2 + x + c - m^2}{(x-a)^2}}$ $\rightarrow x^2 + x + c - m^2 \geq 0 \rightarrow (x+1)^2$
 $c - m^2 \geq 0 \rightarrow m = \pm 1$
 $\rightarrow 1+1 = 2 \rightarrow \boxed{b = -2}$

$f(x) = \frac{\sqrt{c-x^2}}{[x] + [-x] + 1}$ $\leadsto c-x^2 \geq 0 \rightarrow x^2 \leq c \rightarrow -\sqrt{c} \leq x \leq \sqrt{c}$ (2)
 $[x] + [-x] + 1 \neq 0 \rightarrow$ برای x صحیح
 $[x] + [-x] \neq -1$ صفر نمی‌شود.
 $\{x \mid x \in \mathbb{Z}, -\sqrt{c} \leq x \leq \sqrt{c}\}$
 $\boxed{P_f = [-\sqrt{c}, \sqrt{c}]}$

الف) $y = \sqrt{x^2 + x}$ $\rightarrow x^2(x+1) \geq 0$ $\frac{x}{y} \mid \frac{-x^2}{-x+1}$ $P_f = [-1, \infty)$ (4)
 $\Rightarrow y = \sqrt{\frac{(x^2-1)(x^2-x+1)}{x^2-1}} \rightarrow \frac{(x-1)(x+1)(x^2-x+1)}{(x-1)(x^2-x+1)} \geq 0$
 $\boxed{P_f = (-\infty, 1] \cup [1, \infty)}$

الف) $y = \sqrt{|x-1| - x}$ $\rightarrow |x-1| - x \geq 0 \rightarrow x-1 \geq x \rightarrow x \geq 1$
 $x-1 \leq -x \rightarrow x \leq -1$
 $\Rightarrow y = \sqrt{1 - |x-1|} \rightarrow 1 - |x-1| \geq 0 \rightarrow |x-1| \leq 1$
 $-1 \leq x-1 \leq 1 \rightarrow \boxed{-1 \geq x \geq 1}$ (5)

$$ii) y = \sqrt{1 - n/n} \rightarrow 1 - |n| \geq 0 \rightarrow |n| \leq 1 \rightarrow \boxed{n \leq 1} \quad (6)$$

$$i) y = \frac{1}{\sqrt{r - |n - a| - 1}} \rightarrow r - |n - a| > 0 \rightarrow |n - a| < r \rightarrow -r < n - a < r \rightarrow \frac{a - r}{r} < n < \frac{a + r}{r}$$

$$\sqrt{r - |n - a| - 1} = 1 \rightarrow r - |n - a| = 0 \rightarrow |n - a| = r \rightarrow n - a = \pm r \rightarrow n = a \pm r$$

$$\boxed{P_f = (r, a) - \{0\}}$$

$$ii) \frac{\sin^n n - 1}{\cos n} \rightarrow \cos n \neq 0 \rightarrow \boxed{P_f = R - \left\{ \frac{\pi}{2} + k\pi \mid k \in \mathbb{Z} \right\}}$$

$$i) \frac{\cos n}{1 - \cos n - 1} \rightarrow 1 - \cos n - 1 \neq 0 \rightarrow \cos n \neq \frac{1}{2} \rightarrow \boxed{P_f = R - \left\{ \pm \frac{\pi}{3} \right\}}$$

$$ii) \frac{n^{\pi r}}{|r n + 1| - |n + r|} \rightarrow (|r n + 1| - |n + r|) \neq 0 \rightarrow |r n + 1| \neq |n + r|$$

$$\rightarrow r n^{\pi} + 1 \neq n^{\pi} + r \rightarrow (n + \frac{1}{r})(n - \frac{r}{r}) \neq 0 \rightarrow n \neq \frac{r}{r} = r$$

$$\boxed{P_f = R - \left\{ \frac{1}{r}, r \right\}}$$

$$i) y = \sqrt{|r n + 1| - |n + r|} \rightarrow |r n + 1| \geq |n + r|$$

$$\rightarrow (r n + 1)(n + r) \geq 0$$

$$\boxed{P_f = (-\infty, -\frac{1}{r}] \cup [r, \infty)}$$

$$(r n + 1) \geq 0 \rightarrow \log_{r n + 1} \geq 0 \rightarrow \log_{r n + 1} \leq 1 \rightarrow r n + 1 \leq r \rightarrow n \leq \frac{r - 1}{r} \quad (7)$$

$$\rightarrow r n - 1 > 0 \rightarrow n > \frac{1}{r} \quad (8) \rightarrow \boxed{P_f = \left(\frac{1}{r}, r \right]}$$

$$\text{الف) } y = \log(\sqrt{\cos n + 1}) \rightarrow \sqrt{\cos n + 1} > 0 \rightarrow \cos n > -\frac{1}{2} \quad (10)$$

$$n \in \left(-\frac{2\pi}{3} + 2k\pi, \frac{2\pi}{3} + 2k\pi\right)$$

$$\text{ب) } y = \sqrt{\log \frac{n-1}{n+1}} \rightarrow \log \frac{n-1}{n+1} \geq 0$$

$$\frac{n-1}{n+1} \geq 0 \rightarrow \begin{array}{r} n-1 \geq 0 \\ \hline n+1 > 0 \end{array}$$

$$(-\infty, -1) \cup [0, \infty)$$

$$\frac{n-1}{n+1} - 1 \geq 0 \rightarrow \frac{(n-1)(n+1)}{(n+1)} \geq 0$$

$$\begin{array}{r} n-1 \geq 0 \\ \hline n+1 > 0 \end{array}$$

$$[1, \infty)$$

$$\cap \rightarrow [1, \infty) = P_f$$