

۲۰

این مسائل را پیدا کنید

$y = \frac{n+1}{2} \quad n \geq -1$
 $y = \sqrt{-n} \quad n < -1$

$\Rightarrow$ تابع پیوسته

$f(n-2) = 0 \Rightarrow n = -2, 0, 1$

n	-4	-2	0	1	2	3	4
$f(n)$	-	-	0	+	+	+	+
$f(n-2)$	-	-	0	+	+	+	+
$n f(n)$	-	+	0	+	-	-	+
$\frac{n f(n)}{f(n)}$	-	+	0	+	-	-	+

$P_f = [-4, -2] \cup [0, 1] \cup [2, 4]$
 $\cup [1, \infty)$

نقطه صاف باشد که $x=4$ در دامنه f و $x=4$ در دامنه $f(n-2)$ نیست پس در این نقطه ناپیوستگی دارد

$f(n)(n^2-4) \neq 0 \Rightarrow P_f = \mathbb{R} - \{0, 2, -1\}$

$f(n) \geq 0 \Rightarrow \frac{-2 \pm \sqrt{4-4}}{2} = -1$
 $P_{f(n)} = (-1, 0) \cup (0, \infty)$

$T^2 - 2T - 1 = 0 \Rightarrow T = 1 \pm \sqrt{2}$
 $n^2 = 4 \Rightarrow n = \pm 2$
 $n^2 = -2 \Rightarrow n = \pm \sqrt{-2}$

$P_f = (-2, \infty) - \{2\}$

$f-2(n) \neq 0 \Rightarrow [n] \neq 2 \Rightarrow n \notin (-\infty, 2] \Rightarrow P_f = \mathbb{R} - (-\infty, 2]$

$n \neq 0-1 \quad |n-2| \geq n^2 \Rightarrow P_f = [1, \infty)$

$P_f = [-1, -1) \cup (-1, 1)$

$\text{a)} \quad \begin{array}{c} r \\ | + \phi \ 0 \ | + \\ + \end{array} \quad \boxed{P_f = \mathbb{R}} \quad \begin{array}{c} 1 \ r \ f \\ | - \phi - \phi \ 0 \ | + \\ + \end{array} \quad \boxed{P_f = \{1/\sqrt{r}\}} \quad \text{r)} - \checkmark$

$k \geq 0, \quad |n-r|-1 \neq k \Rightarrow |n-r| \neq k+1$
 $|n-r|-1 \neq -k \Rightarrow |n-r| \neq 1-k$
 $-k+r = k-1 \Rightarrow \boxed{k=1} \quad \text{r)} - \checkmark$
 $\left. \begin{array}{l} n = k+r \\ n = -k+1 \\ n = -k+r \\ n = k+1 \end{array} \right\} \quad k \geq 0$

$n \neq |q-1| / n+r+n+r \neq 0 \rightarrow n \neq -|q-1| \quad \text{r)} - \checkmark$
 $n^2 - 4n + 9 = 0 \Rightarrow (n-r)^2 \Rightarrow \boxed{n=r} \quad \text{r)} - \checkmark$

$\lim_{n \rightarrow \infty} \frac{1}{n} > 0 \rightarrow 0 < n < 1 / n \neq |q| / n > 0, n > -1 \quad \text{r)} - \checkmark$
 $\Rightarrow \boxed{P_f = (0,1)} \quad \text{r)} - \checkmark$

$-\omega \leq n^2 \leq r \rightarrow -r \leq n^2 \leq r \rightarrow \sqrt{-r} \leq n \leq \sqrt{r} \quad \text{r)} - \checkmark$
 $\rightarrow \frac{-r}{\sqrt{r}} < n < \frac{r}{\sqrt{r}} \quad \left(n^2 > 0 \right) \rightarrow \boxed{P_{f(n^2)} = \left[\frac{-r}{\sqrt{r}}, \frac{r}{\sqrt{r}} \right]} \quad \text{r)} - \checkmark$