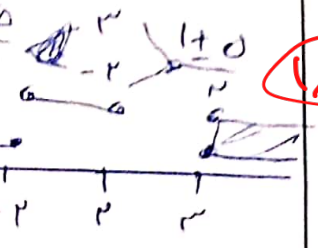
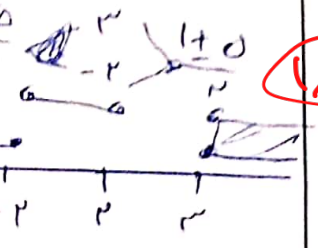


K فقط باید ۱۱ باشد تا عبارت تابع شود به ازای مقادیر کمتر و دو میشود $K \in (-\infty, 11]$ $2(n-1)^2 + (2+3)^2 + k - 2 - 9 = 0$ $2(n-1)^2 + (2+3)^2 + k - 11 = 0$ $2(n-1)^2 + (2-3)^2 = 11 - k - 1 \quad 11 - k \geq 0 \Rightarrow 11 \geq k$	۱ (۱,۵)
if $n \leq a \rightarrow a^2 + 2a \leq 3a + 2 \rightarrow a^2 + a - 2 = 0$ $\Delta \leq b^2 - 4ac \leq 1 + 1 \leq 9$ $\frac{-1 \pm \sqrt{9}}{2} \left\{ \begin{array}{l} a \leq \frac{-1 + \sqrt{9}}{2} = \frac{-1 + 3}{2} = 1 \checkmark \\ a > 0 \end{array} \right.$ $t \geq 1 \rightarrow \frac{1}{n^2 + 2n} \leq 1$ ✓	۲ (۲)
$n+1 \geq 2 \leftarrow n+1 \geq 2 \rightarrow n \geq 1$ $-2 \geq n+1 \rightarrow -3 \geq n \rightarrow 11 - b = a - 6$ $11 + b = a + b = 22$ ✓	۳ (۳)
$\frac{a}{2} \leq n \leq \frac{b}{2} \rightarrow [\frac{a}{2}, \frac{b}{2}] = [2]$ $\frac{a}{2} = 2 \rightarrow a \leq 4 \quad \frac{b}{2} = 2 \rightarrow b \leq 4$ $\frac{b}{a} = \frac{4}{4} = 1$ ✓	۴ (۴)
الف) $-1 + 3$ $-1 + 3$ ب) $-1 + 3$ $-1 + 3$ $\Delta \leq b^2 - 4ac \leq 1 - 1 \leq 1$ $[-1, 1] - [3]$ ✓ $D_f = \emptyset$ ✓	۵ (۵)

-3 -2* 2 3*

الف) $u = \frac{-b \pm \sqrt{\Delta}}{2a}$ 

ب) $\frac{1 \pm \sqrt{5}}{2} < 9 < \frac{3}{2}$ 

ج) $\frac{(u-1)(u-2)(u+2)}{(u+1)(u+2)(u+3)}$ $-2 -1 -1 1 2 3$ $(-\infty, -2) \cup (-1, 0) \cup (1, 2) \cup (3, \infty)$

الف) $[u] - 2 \geq 0$ $[u] \geq 2$ $-u \geq 2$ $u \leq -2$ $(-\infty, -2]$

ب) $0u^2 + \dots$ $0u^2 - 4u + 4 \neq 0$ $\Delta = b^2 - 4ac \Rightarrow 16 - 16 = 0$

ج) $\frac{1 \pm \sqrt{5}}{2} < -1$ $(-\infty, -1) \cup (0, 1) \cup (2, \infty)$

$D = \mathbb{R} - \{(-1, 1), [2, \infty)\}$

الف) $D_f = \mathbb{R} - \{k\pi, k\pi + \frac{\pi}{2}, k\pi + \frac{3\pi}{2}\}$ $\tan \neq 1$ $\cot \neq 0$

ب) $1 - \sin u \geq 0$ $1 \geq \sin u \Rightarrow \frac{1}{2} \geq \sin u \rightarrow \frac{\pi}{6} \leq \sin u$

ج) $D_f = [k\pi + \frac{\pi}{6}, k\pi + \frac{5\pi}{6}]$ $D = [k\pi - \frac{\pi}{4}, k\pi + \frac{\pi}{4}]$

الف) $n-1 > 0$ $1 - \log_2 \frac{n-1}{n} \geq 0$ $1 \geq \log_2 \frac{n-1}{n} \rightarrow n-1 \geq \frac{1}{2}$

ب) $D_f = [\frac{1}{2}, \infty)$

ج) $n^2 - n \geq 0$ $n(n-1) \geq 0$ $1 \neq \log_2 \frac{n^2-n}{n}$ $D_f = (-\infty, 0) \cup [1, \infty) \cup (2, \infty)$

الف) $2^{n-n^2} - 1 \geq 0$ $2^{n-n^2} \geq 1 \rightarrow n-n^2 \geq 0 \rightarrow n \geq n^2 \rightarrow n \geq 1$

ب) $2^{n-n^2} - 1 \geq 0$ $\Delta = b^2 - 4ac \Rightarrow 1 - 4 \leq 0$ $\frac{-b \pm \sqrt{\Delta}}{2a} = \frac{-1 \pm 1}{-2} < 1$

ج) $D_f = [1, 2]$ $2^n - 2^{n^2} = 2^{n^2} + 0 \rightarrow n = -\frac{1}{2} \frac{2^{n^2} - 2^n}{2^{n^2} - 2^n}$

ب) $\frac{2^{n+1}}{2^{n+2}} \in W$ $2^{n+1} = 2^{n^2} + 0 \rightarrow n = -\frac{1}{2} \frac{2^{n^2} - 2^n}{2^{n^2} - 2^n}$

ج) $D_f = \{n \mid n \leq -\frac{1}{2} \frac{2^{n^2} - 2^n}{2^{n^2} - 2^n}\}$