

$$|n-1| \leq \frac{1}{n-1} \rightarrow n-1 = \frac{1}{n-1} \rightarrow n^2 - 2n + 1 = 1 \rightarrow n^2 - 2n = 0 \rightarrow n(n-2) = 0$$

$$n-1 = \frac{1}{1-n} \rightarrow 2n - n^2 - 1 = 1 \rightarrow n^2 - 2n + 2 = 0 \rightarrow \Delta < 0 \quad \times$$

$$n=0 \rightarrow |1| \leq \frac{1}{0-1} \rightarrow 1 \leq -1 \quad \times \rightarrow 1 \neq -1$$

$$n=2 \rightarrow |2-1| \leq \frac{1}{2-1} \rightarrow 1 \leq 1 \quad \checkmark \rightarrow 1=1$$

$\boxed{q_1 = 2}$

الف) $\left| \frac{2n-1}{n} \right| < 2 \quad -2 < \frac{2n-1}{n} < 2$

$\times n \rightarrow -2n < 2n-1 < 2n \rightarrow n \neq 0$

$-2 < 2 \rightarrow \checkmark$

$-2n < 2n-1 \rightarrow 2n-1 > -2n \rightarrow n > \frac{1}{4}$ (P)

① $\cup$ ② $\rightarrow D_f = \left(\frac{1}{4}, +\infty \right)$

$\rightarrow \left| \frac{n-2}{2n+1} \right| > 1 \quad \frac{n-2}{2n+1} > 1 \quad \frac{n-2}{2n+1} < -1$

$\frac{n-2}{2n+1} > 1 \rightarrow \frac{n-2}{2n+1} - 1 > 0 \rightarrow \frac{n-2-2n-1}{2n+1} < 0 \rightarrow \frac{-n-3}{2n+1} < 0$

$\frac{n-2}{2n+1} < -1 \rightarrow \frac{n-2}{2n+1} + 1 < 0 \rightarrow \frac{n-2+2n+1}{2n+1} < 0 \rightarrow \frac{3n-1}{2n+1} < 0$

$D_f = \left(-\frac{1}{3}, \frac{1}{2} \right) \cup \left(\frac{1}{2}, +\infty \right)$

$n^2 < (n+4) \rightarrow n^2 - n - 4 < 0$, $n^2 + n + 4 > 0 \rightarrow \Delta < 0 \rightarrow \mathbb{R}$

$n^2 - n - 4 = (n-2)(n+2) = 0 \rightarrow \frac{-2}{1} \quad \frac{2}{1}$ $D_f = (-2, 2)$

$-2 < n < 2 \rightarrow \frac{2-2}{2} \leq \frac{1}{2} \rightarrow |n - \frac{1}{2}| < 2 - \frac{1}{2} \rightarrow |n - \frac{1}{2}| < \frac{3}{2}$

$a = \frac{1}{2}, B = \frac{3}{2}$



