$$A = \left\{ \frac{2n}{n+1} + \frac{1}{2n} + \frac{1}{2} \;,\; n \in \mathbb{N} \right\}$$

$$= \left\{ \frac{2n}{n+1} + \frac{2+2n}{4n} \;,\; n \in \mathbb{N} \right\}$$

$$= \left\{ \frac{2n}{n+1} + \frac{1+n}{2n} \;,\; n \in \mathbb{N} \right\}$$

Inf A : Use $\sqrt{ab} \le \frac{a+b}{2}$

Pick up $a = \frac{2n}{n+1}$, $b = \frac{1+n}{2n}$

$$1 = \sqrt{\frac{2n}{n+1} \cdot \frac{1+n}{2n}} \le \frac{\frac{2n}{n+1} + \frac{1+n}{2n}}{2}$$

(~~upp~~ lower bound of A) $2 \le \frac{2n}{n+1} + \frac{n+1}{2n}$ ($\in A$)

Since if we put $n = 1 \longrightarrow \frac{2}{1+1} + \frac{1}{2} + \frac{1}{2} = 2 \in A$

$\Longrightarrow \min(A) = 2 = \inf(A)$

Sup A : If we let $n \to \infty \Longrightarrow \frac{2n}{n+1} + \frac{1}{2n} + \frac{1}{2} \to \infty$

$\Longrightarrow$ A is not bounded above

$\Longrightarrow \sup(A) = \infty$

and $\max(A)$ (D.N.E)