But $x \leq 1-\frac{1}{n} \iff n \geq \frac{1}{1-x}$

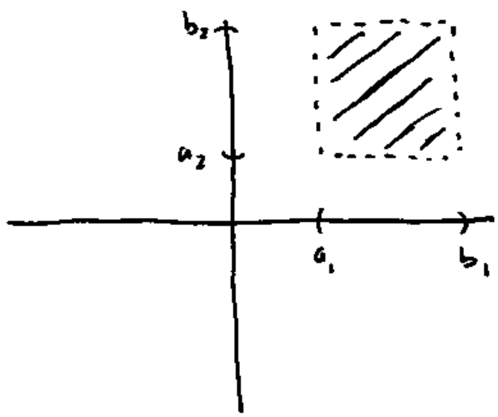
It is always posible to find an integer n greater than any real number $\frac{1}{1-x}$. So $x \in A_n$ for such an n.

Z

(4) Let's consider the open rectangle

$$(a_1,b_1)\times(a_2,b_2)\times\cdots\times(a_n,b_n) \subset \mathbb{R}^n$$

For example in $\mathbb{R}^2$ we have the rectangle $(a_1,b_1)\times(a_2,b_2)$ which looks like



To show that the rectangle is open we must choose any point $x=(x_1,x_2,\ldots,x_n)$ in the rectangle and find an open ball $U_r(x)$ around x which lies in the rectangle.