10 An example is $A_n = (-1)^n \times [0, \infty)$

10 An example is $A_n = (-1)^n \times [0, 2)$

The intersection has only one real number.
Proof:

All even n $A_2 = A_4 = A_6 = \ldots = [0, 2)$
All odd n $A_1 = A_3 = A_5 = \ldots = -1 \times [0, 2)$

~~Theorem~~ Every A_n consist the real number 0
So

$$\bigcap_{n=1}^{\infty} A_n = 0$$

□