Question 10

Looking at reciprocals:

If the family of intervals A_n is defined as $\left[0,\frac{1}{n}\right]$ then the interval defined by $\left[0,\ \frac{1}{n+1}\right]$ (where $n\ \in N$) is always a subset of the interval $\left[0,\frac{1}{n}\right]$ as $\frac{1}{n+1}$ will always be smaller than $\frac{1}{n}$.

Therefore $A_{n+1}\ \subset\ A_n$.

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

So A_n = $\left[0,\frac{1}{n}\right]$ has the stated properties required.