Question 10.

Let $A_n = [1, \frac{1}{n}+1]$

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

$A_{n+1} = [1, \frac{1}{n+1}+1]$

$A_n = [1, \frac{1}{n}+1)$

because $\frac{1}{n+1}+1 < \frac{1}{n}+1$.

thus. $[1, \frac{1}{n+1}+1] \subset [1, \frac{1}{n}+1]$

2. the limit of $\frac{1}{n}+1$ is 1.

$\bigcap_{n=1}^{\infty} A_n = [1, 1] = 1$.

So, the example $A_n = [1, \frac{1}{n}+1)$ satisfies the stated property.