Exercise 6

Using the hint: if K has characteristic of 0, $\mathbb{Z} \subset \mathbb{Q} \subseteq K$ (Abuse of notation but K contains something that is isomorphic to Q and K is atleast the size of something it contains)

Exercise 8

A[x] contains A. Infinite chain in A would mean an infinite chain in A[x] $\varphi : A \to A[x], a \mapsto a$ is an injection.

Exercise 9