HW 1-30

(1) Show that for any $n \in \mathbb{N}$ exactly one of the possibilities $\frac{n}{2} \in \mathbb{N}$, $\frac{n+1}{2} \in \mathbb{N}$ holds.

Hint:

Try induction.

(2) $\bigcap_{n \in \mathbb{N}} (0, 1/n) = ?$

(3) Suppose $A, B \subset \mathbb{R}$ are non-empty and bounded above. Prove that the set $A+B = \{a+b : a \in A, b \in B\}$ is bounded above, and $\sup(A+B) = \sup A + \sup B$.