

**Due date: October 3.**

(This is part of the proof of Exercise 2.19.)

Let  $(a_n)$  be an increasing bounded sequence. Denote its limit by  $a$ . Show that if  $t$  is an upper bound of the range  $\{a_n \mid n \in \mathbb{N}\}$  of the sequence, then  $t \geq a$ .