

Math 319/320 Homework 4

Due Tuesday, September 27, 2005

Problem 1. Let $I_n := [0, \frac{1}{n}]$ and $J_n := (0, \frac{1}{n}]$, for $n \in \mathbb{N}$. Show that

a) $\bigcap_{n=1}^{\infty} I_n = \{0\}$

b) $\bigcap_{n=1}^{\infty} J_n = \emptyset$

Problem 2. Let A and B be bounded nonempty subsets of \mathbb{R} . Define $A + B := \{a + b : a \in A, b \in B\}$. Show that $\sup(A + B) = \sup A + \sup B$.