

MATH 203 HOMEWORK 1

A. Let

$$S = \left\{ \frac{2n-2}{3n} : n \in \mathbb{N} \right\}$$

Compute $\sup S$. Justify your answer.

B. Let S and T be two bounded sets of real numbers. Show that

$$\sup(S \cup T) = \max(\sup S, \sup T).$$

C. Let S and T be two bounded sets of real numbers. Define

$$S + T = \{s + t : s \in S, t \in T\}$$

Show

$$\sup(S + T) = \sup S + \sup T.$$

D. Rudin, Chapter 1 (page 21), problems #1, 2, 5, 7, 8, 11, 14.