Homework 1

Due Wednesday, October 1, 2008

1. For each of the following sets, find the least upper bound (if it exists) and the greatest lower bound (if it exists).

   (a) $(3, 5)$.

   (b) $[-4, 17)$.

   (c) $[0, \infty)$.

   (d) $\{x \in \mathbb{R} : x < 6\}$.

   (e) $\{x \in \mathbb{R} : x^2 < 2\}$.

   (f) $\{x \in \mathbb{R} : |x - 1| < 3\}$.

2. Which of the sets in Problem 1 are bounded?

3. Suppose S is a bounded set of real numbers, and T is a subset of S. Is T also bounded? Why or why not?