1. Decide in each of the following cases whether or not the given set is bounded above. For those which are bounded above give three different upper bounds including the smallest one.
   (i) \{-4, -2, 1, 5, 6, 19\}, (ii) \([-2, \infty)\), (iii) \((-\infty, -5)\), (iv) \([-17, 31]\), (v) \((12, 13)\).

2. Give an example of a set which has least upper bound 5 but contains no element \(x\) satisfying \(x < 5\).

3. Let \(A = \{x : x^2 + 4x + 3 < 0\}\). Prove that this set is non-empty and bounded above. What is the least upper bound? Is it bounded below?

4. Let \(a\) be any element of the open interval \((0, 1)\).
   (i) Show that there is another \(b \in (0, 1)\) with \(b > a\).
   (ii) Prove that \((0, 1)\) has no maximum.