1. Two questions that aren’t quite the same:
   a) Find the absolute maximum of the function \( f(x) = 1 - x^2 \).
   b) Prove that the function \( f(x) = 1 - x^2 \) has an absolute maximum.

**Definition 1.** The function \( f \) is *bounded above* if there is a number \( M \) such that \( f(x) \leq M \) for every \( x \) in the domain of \( f \).

2. A third version of the question: prove that the function \( f(x) = 1 - x^2 \) is bounded above.
Definition 2. The function \( f \) is \textit{bounded} if there is a number \( M \) such that
\[
|f(x)| \leq M
\]
for every \( x \) in the domain of \( f \).

3. Prove that the function \( f(x) = 1 - x^2 \) is not bounded.