1. A customer ordered a quadratic metal sheet with side length $x_0 = 10cm$. What is the maximal acceptable error of the side length if the area of the metal sheet should be
   (a) between $99\,cm^2$ and $101\,cm^2$,
   (e) between $(100-\varepsilon)\,cm^2$ and $(100+\varepsilon)\,cm^2$.

4. For each of the following functions,
   (a) state if the function is monotone.
   (b) Decide if it is injective, surjective or bijective on the given domain.
   (c) Find the supremum and infimum (if they exist); in each case state whether or not the function attains its bounds.
   (i) $f(x) = x^2 : (0,1) \to \mathbb{R}$ (ii) $g(x) = \frac{1}{x-1} : (1,\infty) \to \mathbb{R}$