

Math 301 — Quiz 8

Summary. Please do the following problem. This quiz is to be taken in class with no materials.

Problem 1. Consider the function $f : \mathbb{R} \rightarrow \mathbb{R}$ given by $f(x) = \begin{cases} x^4 \cos(1/x^4) & x \neq 0 \\ 0 & x = 0 \end{cases}$.
Give an ϵ - δ proof to show that f is continuous at $x_0 = 0$.

Problem 2. Consider the function $f : \mathbb{R} \rightarrow \mathbb{R}$ given by $f(x) = x^4$. Give an ϵ - δ proof to show that f is continuous at $x_0 = 2$.