King Fahd University of Petroleum and Minerals
Department of Mathematics and Statistics

Math 101 (Term 172) – Quiz 2

Student Name_____ **Student ID:** _____

Exercise 1 [3 points]

Let $f(x)=\begin{cases}\frac{x^2-x}{x^2-1} & ; \quad x\neq 1\\ \frac{1}{2} & ; \quad x=1\end{cases}$. Is f **continuous** at 1? [Justify]

Exercise 2 [3 points]

Let $f(x)=\begin{cases}x^3\sin\left(\frac{1}{x}\right) & ; \quad x\neq 0\\ 0 & ; \quad x=0\end{cases}$. Is f **differentiable** at 0? [Justify]

Exercise 3 [4 points]

Let $f(x)=\begin{cases}5 & ; \quad x\leq 0\\ 5-x & ; \quad 0<x<4\\ \frac{1}{5+x} & ; \quad x\geq 4\end{cases}$. Where is f **differentiable**? [Justify]