

Math 103, Fall 2014

Quiz on Week 5 Material

Name: _____

What value should the constant c have so that

$$f(x) = \begin{cases} \frac{x-1}{e^x} & \text{if } x \leq 1 \\ c(x-1)e^x & \text{if } x > 1 \end{cases}$$

is differentiable everywhere?

The product and quotient rules are:

$$\frac{d}{dx}[u \cdot v] = u \frac{dv}{dx} + v \frac{du}{dx} \quad \text{and} \quad \frac{d}{dx}\left(\frac{u}{v}\right) = \frac{v \frac{du}{dx} - u \frac{dv}{dx}}{v^2}.$$