

Homework for MATH 31A (due Tuesday, 13 October 2009)

*. Use the formulae

$$\frac{d}{dx}(x) = 1 \quad \text{and} \quad \frac{d}{dx}(fg) = f \frac{d}{dx}g + g \frac{d}{dx}f$$

to prove by mathematical induction that for all $n \in \mathbb{N}$,

$$\frac{d}{dx}(x^n) = nx^{n-1}.$$