

## 1 Basic Calculus: Practice Exercises

Determine the following derivatives and evaluate the following integrals, all by hand. You should also learn how to check these answers on Wolfram Alpha.

(a)  $\frac{d}{du} (u^2 \sin u)$

(b)  $\frac{d}{dz} (\ln(z^2 + 1))$

(c)  $\int v \cos(v^2) dv$

(d)  $\int v \cos v dv$