

# CAAM/MATH423 Partial Differential Equations I Fall 2015

## Homework 1, Due on Tuesday, September 1, 2015

1. (*Types of PDEs*) Finish problem 1 in section 1.5 of Evans book.
2. (*Notations*) Read through Appendix A in Evans book to get familiar with the notations. And prove the *Leibniz's formula* (problem 4 in section 1.5 of Evans book) using multi-index notations. *Hint: Use induction.*

$$D^\alpha(uv) = \sum_{\beta \leq \alpha} \binom{\alpha}{\beta} D^\beta u D^{\alpha-\beta} v.$$