Assignment 7: Mathematics in LaTeX

Will Beason and Evan Ott

Due: 5pm on 5 March 2014

There are many useful features LaTeXprovides for typesetting mathematics. The main idea behind this assignment is to give you a small taste of what is possible. You can look for equations online, but everyone should typeset different equations. For each, create a section containing the features listed. Don't forget to load **amsmath** and **amsthm**. Try to make the mathematics somewhat consistent within each problem.

Problem 1 of 3: Equations

Create equations containing:

- ☐ a use of the equation environment,
- ☐ a use of the align environment with a minimum of five lines of equations aligned with &,
- ☐ a use of the align environment with two columns
- ☐ a use of the cases environment,
- ☐ a use of the multiline environment spanning three lines,
- ☐ a limit with a subscript,
- ☐ a summation with a subscript and superscript,
- ☐ a product with multiple conditions stacked underneath,
- ☐ matrix multiplication,
- ☐ an operator you define in the preamble,
- ☐ a use of \left and \right around a fraction, and
- ☐ a use of \middle.

Problem 2 of 3: Inline Mathematics

Create a paragraph which:

- ☐ describes the mathematics going on within it,
- ☐ has all equations inline,
- ☐ has an integral and a derivative,
- ☐ refers to an equation from the previous problem,
- ☐ has a small matrix, and
- ☐ has a small fraction.

Problem 3 of 3: Proofs

Create a proof containing the following features:

- ☐ a lemma or a theorem,
- ☐ a proof,
- ☐ some form of set notation, and
- ☐ the symbol for integers or natural numbers.