

# MATH 340 Assignment 1, Fall 2008

Michael Monagan

This assignment is to be handed in on Monday September 15th at the beginning of class. For problems involving Maple please submit a printout of a Maple worksheet. Late penalty:  $-20\%$  for up to 24 hours late. Zero for more than 24 hours late.

## Section 1.1: Sets, Functions, Numbers

Exercises 6–9, 10–12, 15–16, 19.

## Section 1.2: Induction

Exercises 4, 8. Please pay attention to how you write your proofs.

Use Maple to compute and simplify the following sums: (i)  $\sum_{i=1}^n i^4$  and (ii)  $\sum_{i=1}^n i^2 2^i$ . Now using Maple to assist you, show that the results are correct by induction on  $n$ .

## Section 1.3: Divisibility

Exercises 2, 6, 13 (i) & (ii), 14, 15.

For exercise 6, use induction on  $n$ .

For exercise 13 apply the extended Euclidean algorithm by hand AND use the Maple command `igcdex` to check your answers.