

MATH 340 Assignment 1, Fall 2010

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This assignment is to be handed in on Monday September 20th in the assignment dropoff box (box #10) by 11:20am.

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 from the text.

Section 1.2: Induction

Exercises 4, 7. Please pay attention to how you write your proofs.

Note, if you have an old copy of the course notes from Fall 2007 or Fall 2008, it is exercises 4 and 8.

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.