Homework 7 (Due Tues, March 25)

Math 2710 – Spring 2014

Professor Hohn

Using the proof techniques we have learned in class, prove each statement.

1. * Prove that the inequality $n^2 \geqslant n$ holds *for every integer*.
2. Prove that for every integer $n \geqslant 0$, the number $n^4 - 4n^2$ is divisible by 3.
3. Prove that $2^n > n^3$ for every integer $n \geqslant 10$.
4. For each $i \in \mathbb{N}$, let $a_i = 3^{i-2}$. Evaluate
   (a) $\displaystyle\sum_{i=1}^{5} a_i$,
   (b) $\displaystyle\prod_{i=1}^{5} a_i$.