

# CSC236 tutorial exercises, Week #2

(Best before 11 am, Monday September 24th)

Danny Heap

Here are your tutorial sections:

Surname	Section	Room	TA
A–F	Day 1 (11:00 am)	LM162	Lila
G–Li	Day 2 (11:00 am)	BA2139	Yuval
Lo–Si	Day 3 (11:00 am)	BA2145	Oles
So–Z	Day 4 (11:00 am)	BA2155	Lalla
A–H	Evening 1 (8:00 pm)	BA1190	Colin
I–M	Evening 2 (8:00 pm)	BA2135	Norman
N–Z	Evening 3 (8:00 pm)	BA2139	Feyyaz

Prove the following two claims using Mathematical Induction (aka Simple Induction). See [Friday's annotated slides](#) (the second half, after the non-annotated pages) for ideas.

1.  $\forall n \in \mathbb{N}$ ,  $4^n - 1$  is a multiple of 3.
2.  $\forall n \in \mathbb{N}$ , the units digit of  $4^n$  is in  $\{1, 4, 6\}$ .