Course 2BA1: Michaelmas Term 2004.

Assignment I.

To be handed in by Friday 12th November, 2004.
Please include both name and student number on any work handed in.

1. Prove by induction on n that

$$\sum_{i=1}^{n}(i^3+i) > \frac{1}{4}(n^4+n)$$

for all natural numbers n.

2. Given any sets A and B, the symmetric difference $A \triangle B$ of A and B is defined by the formula $A \triangle B = (A \cup B) \setminus (A \cap B)$.

   Prove that $A \triangle B = (A \setminus B) \cup (B \setminus A)$ for all sets A and B.

   [N.B. a Venn diagram is not a proof.]