Course 2BA1: Academic Year 2000–1.

Assignment I.

To be handed in by Friday 17th November, 2000.
Please include both name and student number on any work handed in.

1. Prove by induction on n that the product $1 \times 3 \times \cdots \times (2n - 1)$ of the first n odd natural numbers is equal to $\dfrac{(2n)!}{2^n n!}$.

2. Prove by induction on n that $(3n)! > 2^{6n-4}$ for all natural numbers n.

3. Prove that $A \cup (B \cap C) = (A \cup B) \cap (A \cup C)$ for all sets A, B and C.