Course 2BA1: Michaelmas Term 2006.

Assignment I.

REVISED Nov 2, 2006.

To be handed in by Wednesday 22nd November, 2006.
Please include both name and student number on any work handed in.

1. Prove by induction on n that

$$\sum_{i=1}^{n} \frac{1}{i(i+1)} = 2 - \frac{n+2}{n+1}$$

for all natural numbers n.

2. Find the general solution of the differential equation

$$\frac{d^2y}{dx^2} - 2\frac{dy}{dx} - 3y = x\cos 3x.$$