- The questions are designed to help you with material covered in Week 5. You will get help with them in the tutorial on 14 or 15 February.

- You should write up your solution to the starred question (*) clearly and hand it in to your personal tutor in your assigned tutorial on 28 February or 1 March for feedback. *Remember to put your full name and student number on the top of your solution.* Your marked solution to the feedback question will be returned to you in your tutorial on 7 or 8 March.

- It is important that you try to do all of the questions.

- **There are no tutorials for Calculus II during the midterm test week of 18–22 February.**

- **The midterm test for Calculus II will take place in the afternoon of Wednesday, 20 February 2013 in the computer labs. Details are on the course website.**

1: Write out the first three terms of each of the following series and then find the sum:

(a) $\displaystyle\sum_{n=0}^{\infty}\left(\frac{2}{5^n} - \frac{(-1)^n}{3^n}\right)$, [2008 exam question]   (b) $\displaystyle\sum_{n=1}^{\infty}\frac{4}{(4n-3)(4n+1)}$.

2: Determine whether the following series converge (giving the sum) or diverge:

(a) $\displaystyle\sum_{n=0}^{\infty}\left(\frac{1}{\sqrt{2}}\right)^n$,   (b) $\displaystyle\sum_{n=1}^{\infty}\ln\left(\frac{n}{n+1}\right)$.

(*) 3: Use the nth term test or the integral test to determine whether the following series converge or diverge:

(a) $\displaystyle\sum_{n=2}^{\infty}\frac{\sqrt{n}}{\ln n}$,   (b) $\displaystyle\sum_{n=1}^{\infty}n\sin\frac{1}{n}$,   (c) $\displaystyle\sum_{n=1}^{\infty}n^2\,e^{-n^3}$.