MATHEMATICS 101 Section 211
Quiz #8, March 26, 2012
Show all your work. Use back of page if necessary. Calculators are not allowed.

Last Name: **First Name:** **UBC Stud. No.:**

1) For each of the following sums, determine if the series is absolutely convergent, conditionally convergent, or divergent. Correct answers not properly justified will earn no points. (3 points each)

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

(ii) $\sum_{n=1}^{\infty}(-1)^n \frac{n^2 4^n}{n!}$

(iii) $\sum_{n=1}^{\infty}(-1)^n \frac{7n}{10n+7}$

2) In the next lecture, we will see that a power series expansion of e^x is

$$e^x = \sum_{n=0}^{\infty} \frac{x^n}{n!}$$

Explain how you would use this expansion to find an n such that if you add up the first n terms in the power series expansion of e^{-2}, you are correct up to three decimal places. You do not need to compute this value of n. Only to explain what theorems and methods you are using to find this n. (1 point)