

Homework due Week 11, day 3 (use your own paper)

Name : _____

I. Do Sec 11.10 Example 12 on pg 769 using *series*. Close the book while you work out the answer, and verify with the book afterwards.

II. (a) Use *series* to evaluate the limit. Use Table 1. (b) Verify your answer using either L'hospital rule or the computer. (Hint: follow Example 12 pg 769).

$$\lim_{x \rightarrow 0} \frac{x - \ln(1+x)}{x^2}$$

III. (a) Use *series* to evaluate the limit. Look up the relevant Maclaurin series from Table 1. (b) Verify your answer using either L'hospital rule or a computer. (Hint: follow Example 12 pg 769).

i.
$$\lim_{x \rightarrow 0} \frac{1 - \cos x}{1 + x - e^x}$$

ii.
$$\lim_{x \rightarrow 0} \frac{\sin x - x + \frac{1}{6}x^3}{x^5}$$