MA211: Assignment # 6

Required Reading.

- Section 4.1

Any problems marked with * require the use of maple. All other problems are to be done by hand. Any problems marked with # can be submitted for review by the grader.

1. Textbook §4.1: 3, 6#, 10#, 13, 16#, 25, 30#, 31, 32#
2. # Let the function $f(t)$ be defined by a power series.

$$f(t) = \sum_{n=0}^{\infty} a_n t^n$$

   (a) Using the ratio test, show that the condition $\lim_{n\to\infty}(a_{n+1}/a_n) = 0$ is sufficient to guarantee the convergence of the power series for all t.

   (b) Using theorem 4.1.1b and the linearity of the Laplace Transform, compute the transform of this series.

   (c) Apply the ratio test to your answer from part (b). Is the condition given in part (a) sufficient to guarantee that this new series converges for all $s \neq 0$? If yes, explain why. If no, then give a new stronger condition that would guarantee that the transformed series converges.