

Applied Analysis

Homework 2

due September 28, 2007

1. Miller, p. 43, Exercise 1.23.
2. Miller, p. 60, Exercise 2.8.
3. (Cf. Miller, p. 70, Exercise 32.)
 - (a) Write a program in Mathematica to compute the n th coefficient of the asymptotic expansion of an exponential integral in the case where Laplace's method with a single interior maximum applies.
 - (b) Use this code to compute the first couple of coefficients of the asymptotic expansion of $\Gamma(z)$ as $z \rightarrow \infty$ from \mathbb{R}^+ . (The first three terms can be found in Miller, equation (0.4).)