1. [BC] 54.7

2. Suppose a function $f(z)$ is represented in a neighborhood of 0 by the power series

$$f(z) = \sum_{n \geq 0} a_n z^n.$$

   (a) Write down the Maclaurin series for $f'(z)$.
   (b) Prove that if $f(z) = f'(z)$ then $a_{n+1} = \frac{1}{n+1} a_n$.
   (c) Let $\lambda$ be a nonzero complex number. Suppose that $f'(z) = \lambda f(z)$. Give a formula for $a_n$ in terms of $a_0$.

3. [BC] 60.1.

4. [BC] 60.4. (HINT: *Find a series representation for* $\exp(z) - 1$, *and then for* $(\exp(z) - 1)/z$.)