

**MA/PHY507 Spring 2016**

**Problem Set 5**

**DUE: Monday, 29 February 2016: Happy Leap Year!**

1. Find the radius of convergence of:

$$\sum_{k=1}^{\infty} \frac{z^{2n}}{4^n}$$

2. Arfken, section 11.5, page 496–497, problems 11.5.7 and 11.5.8.
3. Find the Laurent expansion of  $f(z) = z(z^2 + 1)^{-1}$  about  $z_0 = i$  and state the maximal annular region on which the expansion is valid.