

## MATH 427 - Homework #2 (Due 02/03)

Practice problems (do not hand in): 16 abcd, 24, 26 ([SS], Chapter 1)

Hand in

- Problems 18, 19, 25 ([SS], Chapter 1)
- Show that the radius of convergence of the power series

$$\sum_{n=1}^{\infty} \frac{(-1)^n}{n} z^{n(n+1)}$$

is 1, and discuss convergence for  $z = 1, -1,$  and  $i$ . (Hint: the  $n$ th coefficient of this series is not  $(-1)^n/n$ .)

- Let  $\gamma$  be the closed polygon  $[1 - i, 1 + i, -1 + i, -1 - i, 1 - i]$ . Find  $\int_{\gamma} \frac{1}{z} dz$ .