

### Homework 13

**Proofs and explanations should always be written using complete English sentences.** You should always explain and justify each of the steps in your solution, unless otherwise noted. Write your name and "Math 185" on the top right of the first page.

1. Sarason, X.10, exercise 7. (Deduce Poisson's formula from Herglotz's formula.)
2. Sarason, X.12, exercises 2, 3, 5, 7. (Always use Rouché's theorem. In exercise 3 use the fact that the absolute value of  $\sin(z)$  has a non-zero minimum on the boundary of the rectangle with vertices  $-\frac{\pi}{2} \pm i\epsilon$ ,  $\frac{3\pi}{2} \pm i\epsilon$ . "Univalent" means "injective".)
3. Sarason, X.16, exercise 1.
4. Sarason, X.17, exercises 2 and 3.